colordyne technologies

Colordyne 1600-S COLOR PAGE PRINTER

SERVICE MANUAL

Powered by memjet

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SAFETY PRECAUTIONS

THIS EQUIPMENT PRESENTS NO PROBLEM WHEN USED PROPERLY. HOWEVER, CERTAIN SAFETY RULES SHOULD BE OBSERVED WHEN OPERATING THE COLORDYNE 1600-S PRINTER.

BEFORE USING THE PRINTER, YOU SHOULD READ THIS MANUAL CAREFULLY AND FOLLOW THE RECOMMENDED PROCEDURES, SAFETY WARNINGS, AND INSTRUCTIONS:

- ✓ Keep hands, hair, and clothing clear of rollers and other moving parts.
- ✓ Avoid touching moving parts or materials while the machine is in use. Before clearing a jam, be sure machine mechanisms come to a stop.
- ✓ Always turn off the machine before making adjustments, cleaning the machine, or performing any maintenance covered in this manual.
- ✓ The power cord and power supply supplied with the machine should be plugged into a properly grounded, easily accessible wall outlet near the machine. Failure to properly ground the machine can result in severe personal injury and/or fire.
- ✓ The power cord and wall plug is the primary means of disconnecting the machine from the power supply.
- ✓ DO NOT use an adapter plug on the line cord or wall outlet.
- ✓ DO NOT remove the ground pin from the line cord.
- ✓ DO NOT route the power cord over sharp edges or trap it between furniture.
- ✓ Avoid using wall outlets that are controlled by wall switches, or shared with other equipment.
- ✓ Make sure there is no strain on the power cord caused by jamming between equipment, walls or furniture.
- ✓ DO NOT remove covers. Covers enclose hazardous parts that should only be accessed by a qualified service representative. Report any cover damage to your service representative.
- ✓ This machine requires periodic maintenance. Contact your authorized service representative for required service schedules.
- ✓ To prevent overheating, do not cover the vent openings.
- ✓ Use this equipment only for its intended purpose.

In addition, follow any specific occupational safety and health standards for your workplace or area.

This manual is intended solely for the use and information of Colordyne Technologies, LLC, its designated agents, customers, and their employees. The information in this guide was obtained from several different sources that are deemed reliable by all industry standards. To the best of our knowledge, that information is accurate in all respects. However, neither Colordyne Technologies, LLC, nor any of its agents or employees shall be responsible for any inaccuracies contained herein.

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NOTES

SECTION 1 – *Installation*

Contents of Packaging

1. COLORDYNE 1600-S Printer
2. Ink Tanks – Cyan, Magenta, Yellow, Black, Black
3. Printhead Cartridge
4. Media Side Guides: Registration (Fixed) and Adjustable – mounting screws attached to Printer
5. Rear Media Support Guide – thumbscrew attached to Printer
6. Media Support Wedges: Narrow and Wide – mounting hardware attached to Rear Media Support Guide
7. Envelope Printing Attachment (Head Media Guide)
8. AC Power Cord
9. USB Cable
10. Operator Manual
11. Driver Software CD

Tools Required

Standard #2 Phillips head screwdriver.

Unpacking and Setup

Remove the Printer and its parts from the carton. Remove all packing tape. The screws that attach the various parts of the Guides to the Printer are under the tape in their respective positions.

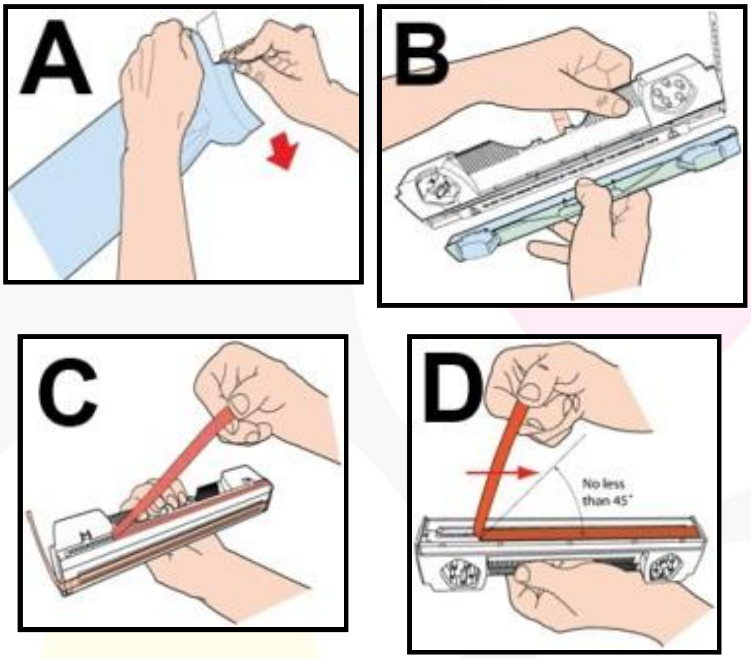
Hydrating the Printhead Cartridge

Before you begin assembling the Printer, it is a good idea to hydrate the Printhead Cartridge.

CAUTION

- **Use electro-static discharge (ESD) protection when handling.**
- **Hold the Printhead Cartridge by the handles ONLY.**
- **DO NOT touch the ink couplings, nozzle surface or electrical contacts.**
- **DO NOT unpack the Printhead Cartridge until the Printer is ready for installation. Once unwrapped, delay in installing the Printhead can compromise print quality due to dehydration.**
- **DO NOT place an unwrapped Printhead on any surface before installing. Protect the Printhead from dust, fibers, dirt and other contaminants at all times.**

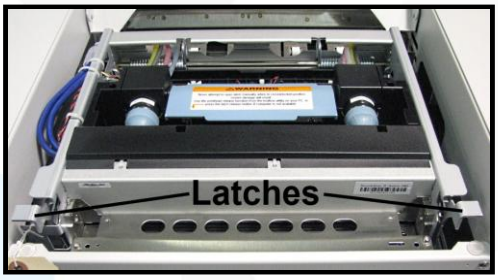
1. **Carefully remove the Printhead Cartridge from the foil packaging**. [**A] Tear at notch or cut end with scissors.**
[B] Remove the protective plastic cover. Hold the Printhead by the handle and unclip the cover from the Printhead.
[C] Remove protective strip from the Printhead Electrical Contacts. **DO NOT allow removed strip to touch the electrical contacts.**
[D] Remove protective strip from the Printhead Nozzles. Hold the Printhead by the handle with one hand. Pull the strip tab with the other hand and slowly peel the strip from the Printhead**. DO NOT pull the strip at any angle less than 45° with the Printhead surface. DO NOT allow removed strip to touch the Printhead Nozzles.**



2. Pour distilled water into the orange plastic cover you removed in Step 1B and carefully reinstall the Printhead back into the plastic cover. Set the Printhead aside for installation later. This rehydrates Printhead and allows easier priming once it is installed in the Printer.

Removing Service Station Transport Tab

1. Open the Top Cover.
2. Release the two latches (one on either side of the Print Engine). Open the top half of the Print Engine by lifting both levers at the same time.



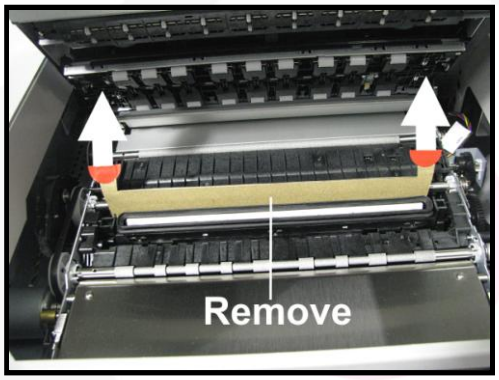
CAUTION

OPERATE AND HOLD ONTO BOTH LATCHES WHEN OPENING AND CLOSING THE PRINTHEAD ASSEMBLY TO PREVENT DAMAGE.

DO NOT ALLOW THE ASSEMBLY TO DROP BY ITSELF WHEN CLOSING.

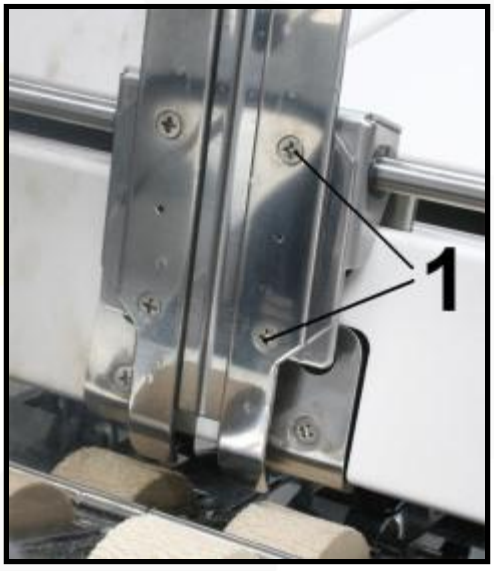
TO PREVENT DAMAGE TO THE INK LINES, A STOP LIMITS RAISING THE ASSEMBLY MORE THAN 60°.

3. Pull up on the two tabs to remove the cardboard Transport Tab from the Service Station.
4. Carefully close and relatch the Upper Print Engine. Then close the Top Cover.



Assembling the Printer

Begin by installing the Adjustable Side Guide with two screws **[1]**:



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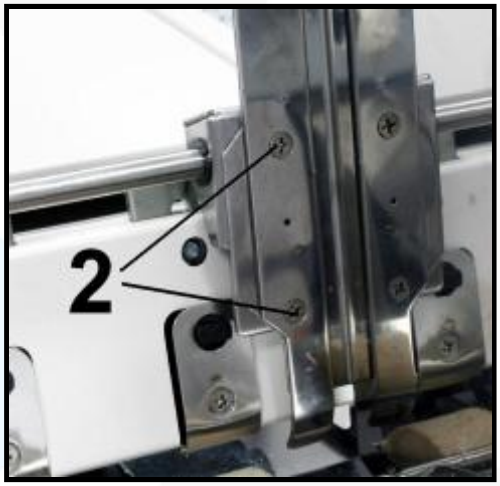
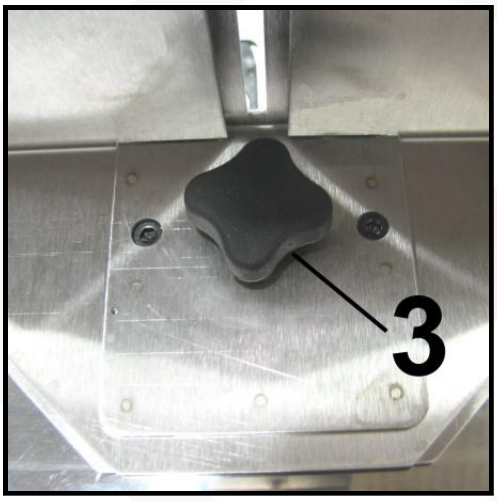
Next install the Envelope/Paper Side Guide using the two screws **[2]** provided.



Attach the Rear Paper Support using the knob **[3]** provided.

NOTE: The two outside holes fit over the socket head screws.

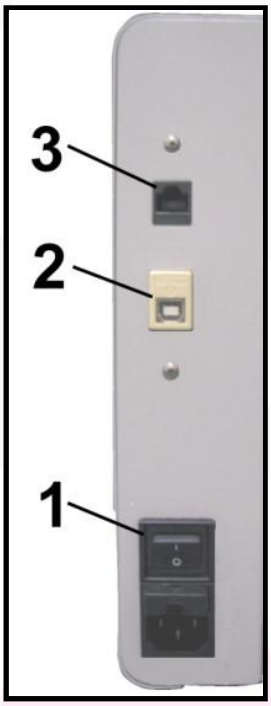


Install the Back Guide using the thumbscrew and washer **[4]** provided. The washer goes between the screw and the Rear Paper Support.

Connecting the Colordyne 1600-S

Plugging in the Printer

Connect the power cord to the receptacle **[1]** at the rear of the Printer. The internal power supply in the Printer is rated 115 to 240VAC, 50/60 Hz.



CAUTION

DO NOT USE AN ADAPTER PLUG OR EXTENSION CORD TO CONNECT THE PRINTER TO THE WALL RECEPTACLE.

DO NOT USE OUTLETS CONTROLLED BY WALL SWITCHES.

DO NOT USE AN OUTLET THAT SHARES THE SAME CIRCUIT WITH LARGE ELECTRICAL MACHINES OR APPLIANCES.

Connecting to the Computer

The Printer connects to the computer through the USB port **[2]**.
A Network port **[3]** is provided when operating in a network environment. See "Network Connection Setup" in the "Using the Printer Toolbox" section.

Turning Power ON and OFF

Powering Up Printer:

1. **Press the Main Power Switch on the Rear Panel.**
2. **Press the Power Button on the Control Panel.**

Powering Down Printer:

CAUTION

WHENEVER POWERING DOWN UNIT, ALWAYS:

1. **PRESS THE POWER BUTTON ON THE CONTROL PANEL.**
2. **WAIT FOR THE PRINTER TO STOP PROCESSING.**
3. **THEN PRESS THE MAIN POWER SWITCH ON THE REAR PANEL.**

Install the Printer Driver

For the Printer software to operate properly check that the computer system meets these **minimum requirements:**

- Windows XP, Windows Vista, Windows 7. (Supports 32 and 64 bit systems)
- You must have administrative privileges on the system.
- Microsoft Internet Explorer 6.0 or higher.
- Java version 6 or higher
- USB 2.0 port (ports will be identified as "USB2" or "Enhanced" in the Device Manager.)
- Microsoft .NET Framework 3.5 installed (Even if you have a higher version installed, version 3.5 must also be installed.

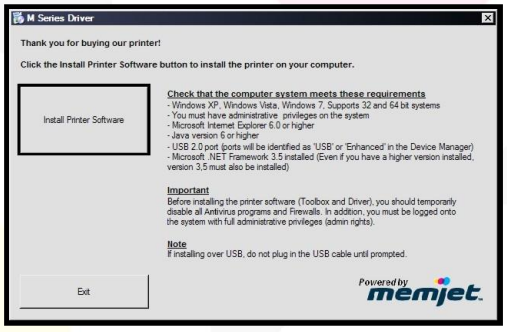
IMPORTANT: Before installing the Printer software (Toolbox and Driver), you should **temporarily disable all antivirus programs and firewalls**. In addition, you must be logged onto the system with full administrative privileges (admin rights).

NOTE: If installing over USB, **do not plug in the USB cable until prompted**.

1. Make sure the Printer is plugged in and turned OFF. **Disconnect the USB connection if you have plugged it in already.** Install the disk supplied with the Printer in your CD drive. When the AutoPlay Window opens, click "**Run Setup.exe**" to start.

AutoPlay
DVD RW Drive (E:)
Always do this for software and games:
Install or run program from your media
Run setup.exe
Publisher not specified
General options
Open folder to view files
using Windows Explorer
View more AutoPlay options in Control Panel

2. The "Install Printer Software" window opens on the computer screen. Make sure the computer system meets the **minimum requirements** and you have followed the other instructions on the screen. Click "**Install Printer Software**".


M Series Driver
Thank you for buying our printer!
Click the Install Printer Software button to install the printer on your computer.
Install Printer Software
Check that the computer system meets these requirements
- Windows XP, Windows Vista, Windows 7, Supports 32 and 64 bit systems
- You must have administrative privileges on the system
- Microsoft Internet Explorer 6.0 or higher
- Java version 6 or higher
- USB 2.0 port (ports will be identified as 'USB' or 'Enhanced' in the Device Manager)
- Microsoft .NET Framework 3.5 installed (Even if you have a higher version installed, version 3.5 must also be installed)
Important
Before installing the printer software (Toolbox and Driver), you should temporarily disable all Antivirus programs and Firewalls. In addition, you must be logged onto the system with full administrative privileges (admin rights).
Note
If installing over USB, do not plug in the USB cable until prompted.
Exit
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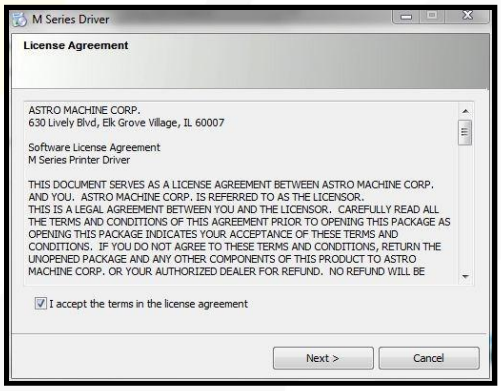
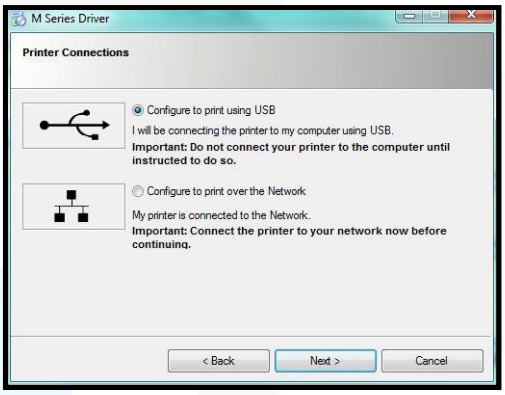
3. The **License Agreement** window opens. Carefully read the "End User Agreement". If you agree to the terms, check "I accept…" then click **Next>**.


M Series Driver
License Agreement
ASTRO MACHINE CORP.
630 Lively Blvd, Elk Grove Village, IL 60007
Software License Agreement
M Series Printer Driver
THIS DOCUMENT SERVES AS A LICENSE AGREEMENT BETWEEN ASTRO MACHINE CORP. AND YOU. ASTRO MACHINE CORP. IS REFERRED TO AS THE LICENSOR. THIS IS A LEGAL AGREEMENT BETWEEN YOU AND THE LICENSOR. CAREFULLY READ ALL THE TERMS AND CONDITIONS OF THIS AGREEMENT PRIOR TO OPENING THIS PACKAGE AS OPENING THIS PACKAGE INDICATES YOUR ACCEPTANCE OF THESE TERMS AND CONDITIONS. IF YOU DO NOT AGREE TO THESE TERMS AND CONDITIONS, RETURN THE UNOPENED PACKAGE AND ANY OTHER COMPONENTS OF THIS PRODUCT TO ASTRO MACHINE CORP. OR YOUR AUTHORIZED DEALER FOR REFUND. NO REFUND WILL BE
I accept the terms in the license agreement
Next >
Cancel

4. After a few moments the "Printer Connections" window opens. Click "Configure to print using USB". Then click **Next>**.


M Series Driver
Printer Connections
Configure to print using USB
I will be connecting the printer to my computer using USB.
Important: Do not connect your printer to the computer until instructed to do so.
Configure to print over the Network
My printer is connected to the Network.
Important: Connect the printer to your network now before continuing.
< Back
Next >
Cancel

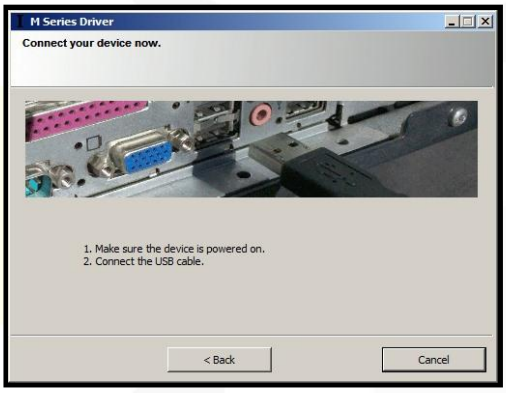
5. After a few moments the "M Series Driver" window opens followed by the "Would you like to install this device software?" window. Click **Install** and the driver software will load from the disk.

Windows Security
Would you like to install this device software?
Name: Colordyne Printers
Publisher: Memjet Labels Inc
Always trust software from "Memjet Labels Inc".
Install
Don't Install
You should only install driver software from publishers you trust. How can I decide which device software is safe to install?

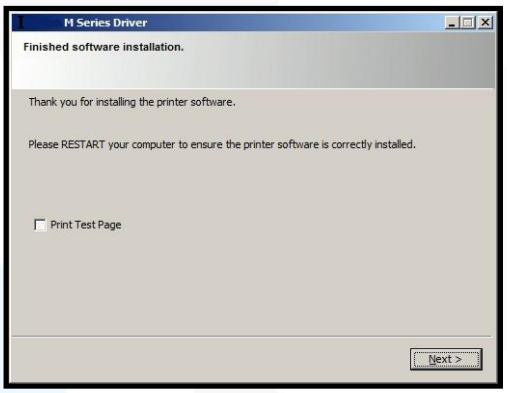
6. The software will start to download and a second "Would You Like to Install This Device Software" opens. Click **Install**.

Windows Security
Would you like to install this device software?
Name: Colordyne Universal Serial Bus contro...
Publisher: Memjet Labels Inc
Always trust software from "Memjet Labels Inc".
Install
Don't Install
You should only install driver software from publishers you trust. How can I decide which device software is safe to install?

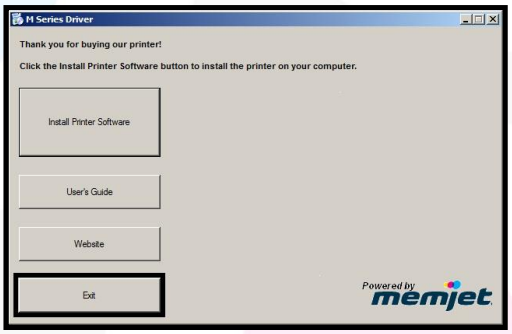
7. The "**Connect Device Now**" window opens. Switch the Printer on and connect the USB cable. **Don't click on either button.** The software will then finish installing.



8. The "**Finished software installation**" window opens. Do not print a test page since printer is not set up yet. Do not check the Print Test Page. Click **Next>**.


M Series Driver
Finished software installation.
Thank you for installing the printer software.
Please RESTART your computer to ensure the printer software is correctly installed.
Print Test Page
Next >

9. The M Series Driver welcome window returns. Note that you can click on the **User's Guide** for installation, document set up and printer maintenance, cleaning and troubleshooting information. If you are connected to the Internet you can click **Website**. Click **Exit** to close CD.
10. Restart the computer to complete the installation.

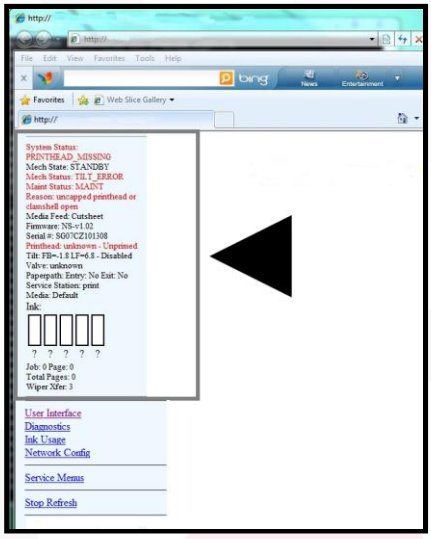

M Series Driver
Thank you for buying our printer!
Click the Install Printer Software button to install the printer on your computer.
Install Printer Software
User's Guide
Website
Exit
Powered by memjet

Install the Ink Tanks

Printer uses a single Printhead Cartridge and five Ink Tanks (two Black, one Cyan, one Magenta, and one Yellow). Install the Ink Tanks as follows:

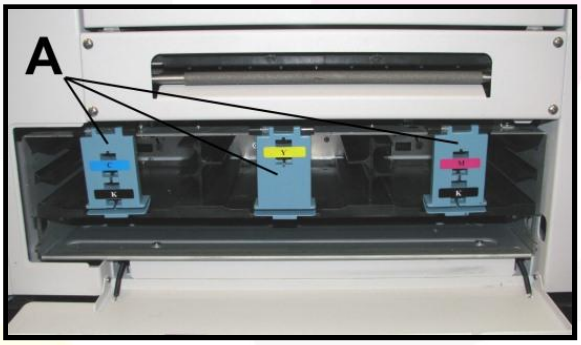
TURN PRINTER OFF:

1. **Open the Toolbox.** Go to All Programs, open the Printer Folder and open the Toolbox. On the Opening Screen you will see System Status information in the upper left corner.

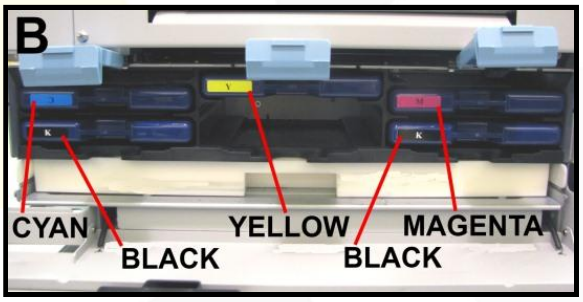


2. Open the Front Cover (*hinged at bottom*). Open the three Latches **[A]**.

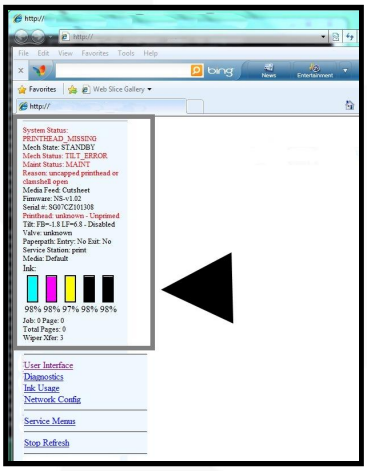
3. Remove the new Tank(s) from packaging.



4. Slide the new Tanks (*label up*) into their appropriate color slots **[B]**.
INSTALLATION TIP: Make sure the Tanks seat properly. Insert the Tank into the appropriate Ink Station, then pull the Tank back about an inch and push forward firmly to insure that the Ink Nozzles penetrate the seals on the Ink Tanks.



5. Watch the Toolbox screen on your computer; you will see the ink colors fill in as the Tanks are installed. If the ink color does not fill in after a few seconds, reinstall the Ink Tank.
6. Lock the three Latches. Close the Front Cover.



WARNING

The ink in the Ink Tanks may be harmful if swallowed. Keep new and used Tanks out of reach of children. Discard empty Ink Tanks immediately.

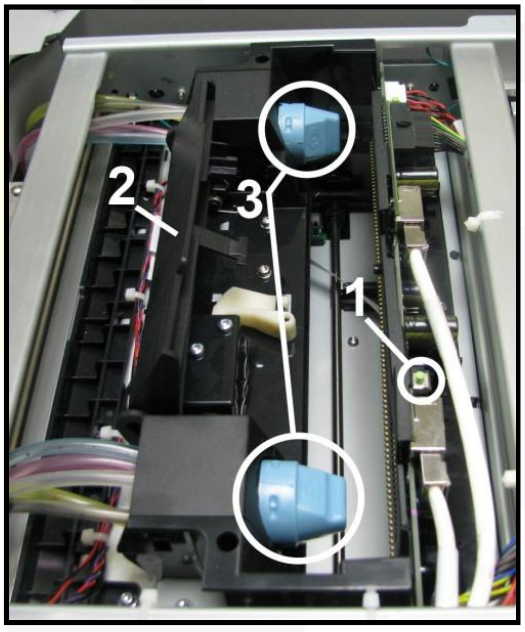
Install the Printhead Cartridge

The Printhead Cartridge is a delicate precision device. Handle with extreme care to avoid damage and issues that could degrade print quality.

CAUTION

- **Use electro-static discharge (ESD) protection when handling.**
- **Hold the Printhead Cartridge by the handles ONLY.**
- **DO NOT touch the ink couplings, nozzle surfaces or electrical contacts.**
- **DO NOT unpack the Printhead Cartridge until the Printer is ready for installation. Once unwrapped, delays in installing the Printhead Cartridge can compromise print quality due to dehydration.**
- **DO NOT place an unwrapped Printhead Cartridge on any surface before installing. Protect the Printhead from dust, fibers, dirt and other contaminants at all times.**

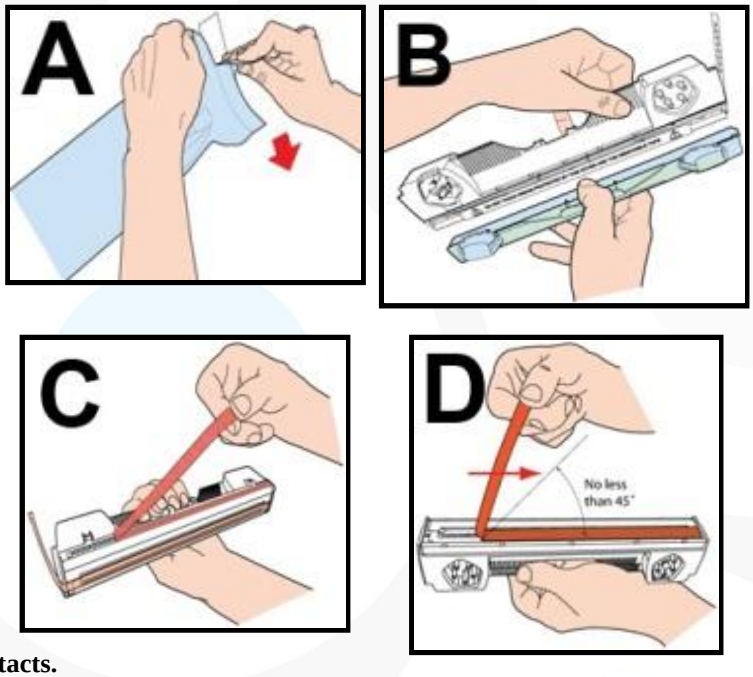
1. Plug in the Printer and turn the Main Power Switch ON. Open the Top Cover. Press the Printhead Cover Release Button **[1]**. The Printer will run a routine, then the Cover will pop open **[2]**. **NOTE: Remove the Cap Protectors on the Ink Nozzles [3]. Be sure to open the Cover fully to retract the Ink Nozzles.**



CAUTION

DO NOT PRY OR MANUALLY LIFT THE PRINTHEAD COVER OR THE COVER MAY BREAK. ONLY OPEN THE COVER USING THE RELEASE BUTTONS ON THE PRINTER OR THE PRINTHEAD RELEASE COMMANDS IN THE SERVICES TAB OR M SERIES TOOLBOX.

2. Take the Printhead Cartridge you hydrated and set aside earlier, remove the orange cover and proceed to **Step 3**. Otherwise, follow the Steps below:



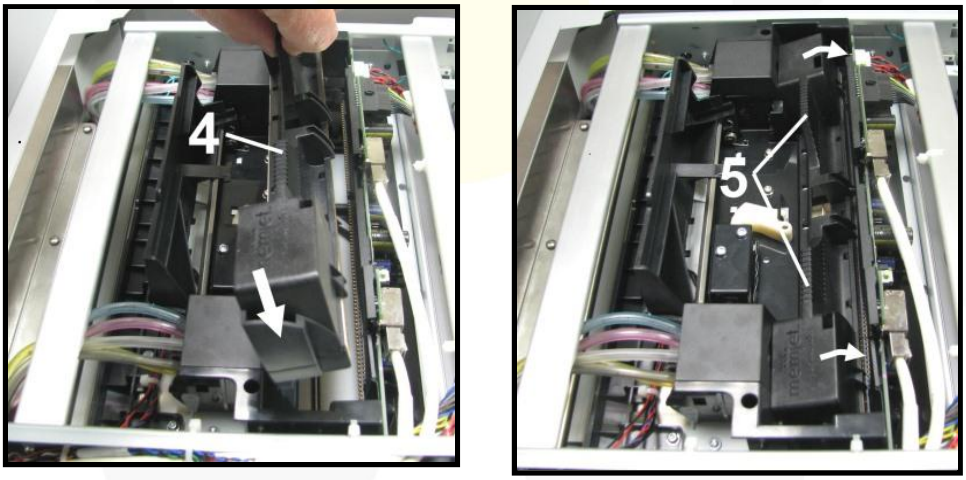
Carefully remove the Printhead Cartridge from the foil packaging. [**A] Tear at notch or cut end with scissors.**
[B] Remove the protective plastic cover. Hold the Printhead by the handle and unclip the cover from the Printhead.
[C] Remove protective strip from the Printhead Electrical Contacts. **DO NOT allow removed strip to touch the electrical contacts.**
[D] Remove protective strip from the Printhead Nozzles. Hold the Printhead by the handle with one hand. Pull the strip tab with the other hand and slowly peel the strip from the Printhead**. DO NOT pull the strip at any angle less than 45° with the Printhead surface. DO NOT allow removed strip to touch the Printhead Nozzles.**

IMPORTANT! Pour distilled water into the orange plastic cover you removed in Step 4B and carefully reinstall the Printhead back into the plastic cover. Set the Printhead aside for 15 to 20 minutes. This rehydrates Printhead and allows easier priming once it is installed in the Printer.

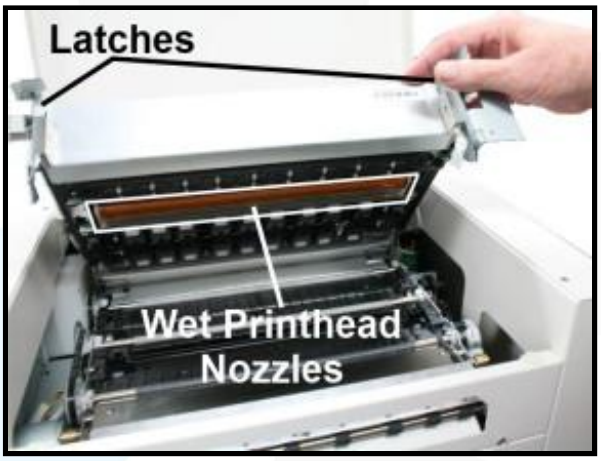
WARNING

To avoid electrical shock or shorting:
Before installing the Printhead, make sure the nozzles are hydrated and the contacts are DRY!

3. Carefully insert the Cartridge into the compartment at an angle **[4]**, with the Printhead surface facing down and the Ink Nozzles facing the ink hoses. Once it is seated, gently tilt the Cartridge back until it snaps into an upright position **[5]**. **DO NOT FORCE the Cartridge into position.**



4. **Wet the Printhead Surface. This ensures that the Printhead will prime correctly.** Open the Top Cover. Release and lift up the two latches (*one on each side of the Printhead Assembly*) **at the same time** to raise the Printhead Assembly. **Moisten the Printhead nozzles using distilled water and a wet, lint-free cloth. Close and relatch the Printhead Assembly.**



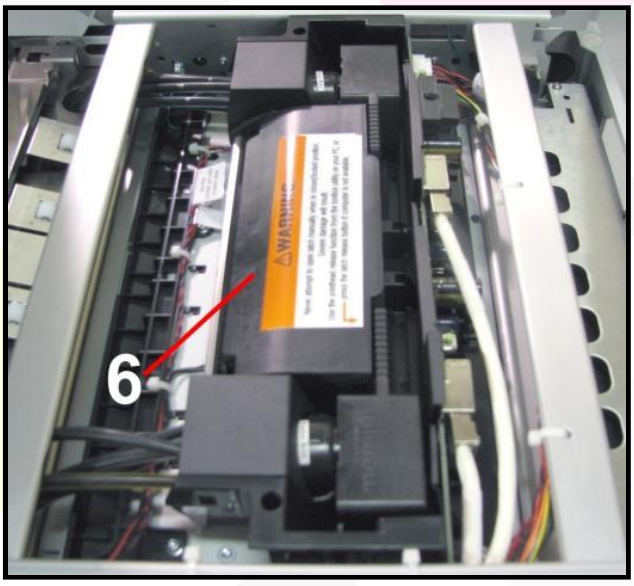
CAUTION

OPERATE AND HOLD ONTO BOTH LATCHES WHEN OPENING AND CLOSING THE PRINTHEAD ASSEMBLY TO PREVENT DAMAGE.

DO NOT ALLOW THE ASSEMBLY TO TO DROP BY ITSELF WHEN CLOSING.

TO PREVENT DAMAGE TO THE INK LINES, A STOP LIMITS RAISING THE ASSEMBLY MORE THAN 60°.

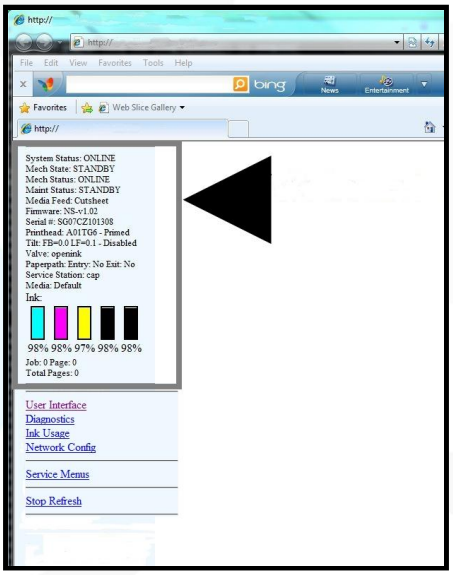
5. Close the Printhead Cover **[6]**. The Printer will start running a start-up routine and priming ink into the Printhead. This may take a few minutes. Make sure that ink is flowing through the ink hoses.



6. Watch the Toolbox screen on your computer again. Notice that some of the information is in red. As the Printer circulates ink and primes the system these fields should all turn black.

7. When the Printer stops processing and all the fields in System Status are black, the Printer is ready for use. Close the Top Cover.

NOTE: The Printer may take up to 12 minutes to set itself up during initial startup. This is normal. The machine will emit a number of chirps, whirrs and other noises as it circulates ink and runs systems.



SECTION 2 – *Troubleshooting*

This section is arranged by first the condition that might occur, and then by possible problems, their cause and recommended solutions.

Power Problems

CONDITION	PROBLEM	SOLUTION
Power is ON, nothing happens.	No power to Printer.	Check that the power cord is plugged in. Check that the power outlet is live. Replace AC Adapter.

Interface Communication Problems

CONDITION	PROBLEM	SOLUTION
Printer does not respond to software.	Connection problems.	Check that port is communicating with Printer by using another USB cable, replace cable if necessary. If port cannot communicate using USB cable, check Printer. If port cannot communicate using USB cable and the Printer is OK, check USB port on the computer.
Printer not responding to software.	Poor connection between Printer and computer.	Turn Printer OFF and ON again. Check connections.

Feeding Problems

CONDITION	PROBLEM	SOLUTION
Intermittent feeding	Feed Ramp not used.	The Feed Ramp adds a slope to the stack and helps feeding.
	Side Guides set improperly.	Loosen the Side Guides slightly.
	Dirty Feed Rollers.	Clean the Feed Roller with distilled water and a cloth. DO NOT use any solvents or detergents as they may damage the Feed Rollers.
	Paper stuck together.	Fan media before placing it in Printer.
	Uneven mail piece.	Tap contents to front of envelopes and retry.
Multiple feeds	Separator gap not set properly.	Adjust Separators to thickness of media.
	Media stuck together.	Fan the media before loading in Printer.
	Side Guides too close to media.	Push Side Guides away from media.
Failure to feed	Side Guides too close to media.	Readjust Side Guides.
	No power to Printer.	Check that power buttons are ON (Control Panel and Main Power) and that the power cord is plugged in.
	Feed gap too tight.	Adjust Separator to thickness of media.
	Feed gap too loose.	Adjust Separator to thickness of media.
	Material is out of specification.	Maximum thickness is 0.020".
	Motor on, Feed Rollers not turning.	Check for broken Drive Belt and replace. Check for loose set screws on Drive Pulley or Belt Drive Roller Pulley.
	Clutch not engaging.	Replace Clutch.
	Motor failure.	Check that Motor is receiving power from the power supply.
	No power.	See Power Problems in this Section.
Jams	Paper path obstruction.	Clear jam and remove pieces remaining under Printhead.
	Paper not loaded properly.	Instruct operator in proper loading of media.
	Feed Ramp not used properly.	Set Feed Ramp.
	Separators improperly adjusted.	Adjust Separators to thickness of media.
	Media curled or bent.	Uncurl media.
	The Separators are worn.	Replace Separator tip.

The Memjet Printhead

CONDITION	PROBLEM	SOLUTION
Missing parts of letters or text.	Air and bubbles blocking nozzles. Printhead is dry.	Clean the Printhead using recirculation, priming or cycles of depriming and priming found in the **Maintenance** section of the Driver. Rehydrate the Printhead using distilled water and a wet, clean, lint-free cloth. **NOTE:** Bubbles often disappear with Printer use.
Print shows regularly missing or misdirected nozzles or ink color mixing.	Debris on Printhead.	Perform the startup routine. Clean the Printhead using one of the Maintenance Levels in the Driver. Wipe the Printhead manually with distilled water and a wet, clean, lint-free cloth. Replace the Printhead.
Ink mixing – Mixed or muddy colors.	**Causes:** Ink flooding, air in the Printhead or a dirty Printhead.	Clean the Printhead using one of the Maintenance Levels in the Driver. Wipe the Printhead manually with distilled water and a wet, clean, lint-free cloth.
No print or crisp blocks of missing drops.	Electrical failure or poor electrical connection.	Reseat the Printhead. Replace the Printhead.
System will not reprime ink after replacing Printhead Cartridge.	Printhead nozzles dry. Ink Tanks may be 1/3 full or less.	Wipe the Printhead manually with distilled water and a wet, clean, lint-free cloth. Replace Ink Tanks.

The Service Station

CONDITION	PROBLEM	SOLUTION
Motor stalls	• Jammed gear train due to broken post or improperly seated gears. • Squeegee blade wedged, not seated properly. • Debris build-up on blade and rollers, increasing friction. • Bad Motor.	1. Check each of the possible causes and correct if possible: reseat the gears and/or squeegee, clean debris from blade and rollers. 2. Retest. 3. If Motor is still stalled, *replace Motor*.
Color mixing	• Wiper Roller is saturated. • Squeegee blade is wedged, not seated properly or bowed.	1. If saturated, clean or replace roller. 2. Reseat squeegee. 3. If squeegee is bowed, *adjust squeegee blade.*
Service Station cannot be removed from the Print Engine	Wiper Roller Latches were not completely closed when the Station was installed. Latches now hooked on bottom of paper path.	Carefully unhook Latches from bottom of paper path and re-lock correctly.

Printing Problems

CONDITION	PROBLEM	SOLUTION
Extra lines; losing data	Database problem.	Check data in database program.
Improper output (address information out of order, miss-feeding, etc.)	Wrong interface settings. Static electricity. Dirty Media Sensor.	Check software or database on PC. Close the software and then turn Printer OFF and ON. Clean Media Sensor.
Media jams	Double feeding. Media is curled or bent. Media is too thin.	Adjust Sheet Separators on Feeder. Uncurl media. The minimum thickness for media is 0.004".
No communication	Improper cabling / connector. Unit not receiving power.	Use Proper cable (see Operator Manual). Check plug connections, ON/OFF switch and fuse on back panel.
Print too light or missing character dots	Clogged or dirty Printhead. Running out of ink.	Check the Printhead. Replace Ink Tanks.
Blurry address 	Image is not sharp.	Clean Printhead using one of the Maintenance Levels. Replace the Ink Tanks or change the printer resolution setting. Check media thickness.
Split line of type **Astro Machine Corp.** ***630 Lively Blvd.*** **Elk Grove Village, IL 60007**	A line of type does not match up.	Check media thickness. The minimum thickness for material is 0.004". Increase the resolution of the print.
Feeding problems	Double sheets. Misfeeds.	Adjust the Sheet Separators.
Paper Light Flashes	Paper Misfeeds.	Press the Paper button to feed the paper into position for printing.
Cancel Light Flashes	Ink Tank Missing	Install Ink Tank.

Software Problems

Refer to the manual for the application software being used.

Jams in the Colordyne 1600-S Printer

If a jam occurs, **STOP the Printer.**

Some possible causes for jamming are:

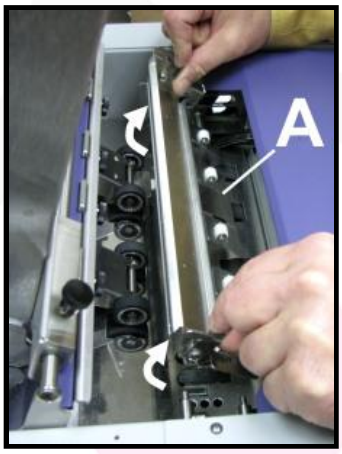
1. Feeding more than one piece of media (double-feeding).
2. Damaged media, such as dog-eared (turned down corners).
3. Media that is not stiff enough may not be usable. Media that meets Postal stiffness requirements for automated feeding is acceptable in the Colordyne 1600-S.
4. Envelopes caught under the flap of another envelope or stick to one another.

Removing Jammed Media

Clearing a jam depends on where the jam occurred.

Feed Section: Clear by pulling the paper out of the Separators.

Antistatic Brush Assembly: If necessary, remove the Front Media Guide **[A]** to access jammed material. Unlatch the two Latches (*one on either side of the Assembly*) and lift the Guide as shown. **Do not bend the brushes!** Clear the jam, then carefully reinstall the Brush Assembly.

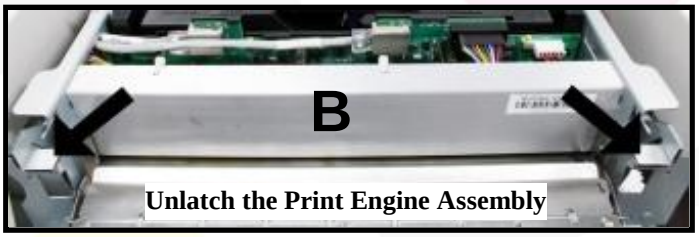


CAUTION

DO NOT BEND, PINCH OR CUT THE INK HOSES LOCATED DIRECTLY IN FRONT OF THE BRUSH ASSEMBLY.

NOTE – It is important that when Brush Assembly is reinstalled it does not have any side-to-side play. If after reinstalling you find any side-to-side play, remove and reinstall the Assembly again.

Print Engine Area: Open the Top Cover. Release and lift up the two latches **[B]** (*one on each side of the Printhead Assembly*) **at the same time** to raise the Printhead Assembly **[C]**. Clear the jam, then carefully lower and relatch the Printhead Assembly. Close the Top Cover.



Unlatch the Print Engine Assembly

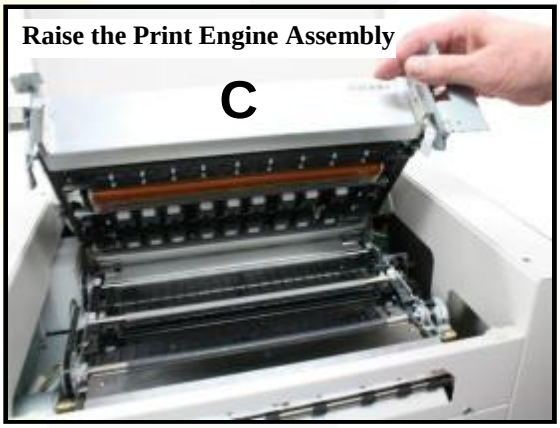
CAUTION

OPERATE AND HOLD ONTO BOTH LATCHES WHEN OPENING AND CLOSING THE PRINTHEAD ASSEMBLY TO PREVENT DAMAGE.

DO NOT ALLOW THE ASSEMBLY TO DROP BY ITSELF WHEN CLOSING.

A STOP LIMITS RAISING THE ASSEMBLY MORE THAN 60°.

Raise the Print Engine Assembly



Misfeeds

Misfeeds can be corrected by readjusting the Sheet Separators to the media or replacing them. See "Replacing the Sheet Separators" on page 82.

SECTION 3 – *Functional Operation*

Sequence of Operation

The User Prepares the Printer

1. Installs Ink Tanks in proper locations.
2. Uses a single piece of media to set Sheet Separators.
3. Loads media and adjusts the Side guide to within 1/32" of media.
4. Stacks media in Feeder and adjusts Feed Ramp.
5. Turns Printer ON.

The User Prepares the Layout and Creates a Job

1. The user selects the database and opens the layout software such as Microsoft Word.
2. Creates a layout consisting of the variable data from the database using the Merge function.
3. User then creates a layout using fixed information such as return address and adds graphics as required.
4. User saves layouts.
5. User initiates the Print function through the File menu in the program.
6. User then selects the Properties menu through the Print Driver to set paper size and desired print resolution.
7. User then clicks the Print button to start printing the job.

Printing the Job

1. As soon as enough of the job is sent from the computer to the Printer, the Control Panel Power Button begins to blink. If this is the first job of the day, the Print Engine will automatically run the cleaning function. Once this is complete the Printer will begin to feed paper.
2. After the media travels to the Printer, the Paper Sensor detects the lead edge of the paper and will then stop the feeding and line up the lead edge of the paper with the Printhead.
3. The Print Engine then begins printing the job. The paper is advanced by the Paper Feed Clutch to continue the printing.
4. When the first piece is printed it is ejected and the next piece is moved into position and aligned for printing.
5. When the last piece in the job is printed the Printer ejects it and any pieces waiting to be printed.
6. The Service Station caps the Printhead and remains there until the next job is sent.

Printing

The Print Engine consists of a single page-width Printhead to handle four colors from five Ink Tanks (Cyan, Magenta, Yellow, Black and Black) to provide full color CMYK printing. The printing and operation of the Printer is controlled by the Printer Interface Circuit Board and Print Engine Main Circuit Board.

Printer Functional Description

1. A Photosensor located behind the Sheet Separators sees the lead edge of the paper, another Photosensor in the Print Engine sends a signal to the Print Engine on the Main Board that the mailing piece is ready for printing. The Feed Clutch remains disengaged as long as a mailing piece is in view of the Photosensor.
2. When the mailing piece uncovers the Sensor, the Clutch engages the Feed Rollers and the next piece of media starts moving toward the Printer section.
3. This cycle repeats itself as long as there is media in the Feeder.
4. The cycle stops when the Feeder runs out of media, the operator stops the process, or there are no records left to be printed.
5. When there are no records to be printed, the Printer ejects any paper that is in line for printing. The Feed Clutch is OFF at this point.

Printhead Cleaning

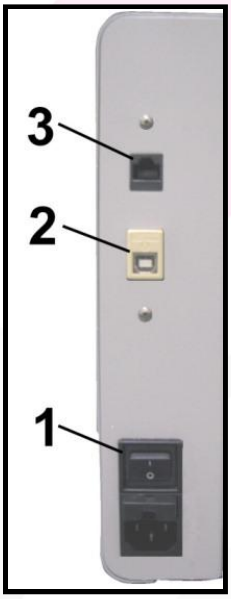
The Printhead is cleaned at the beginning of each startup of a job by the Service Station and at times during a run as determined by the Printer software. A separate Motor operates the Service Station.

Printer Controls

The Printer Controls and their functions are as follows:

Main Power Connection, ON/OFF Switch, USB Connection

Connect the power cord to the receptacle **[1]** at the rear of the Printer. The internal power supply in the Printer is rated 115 to 240VAC, 50/60 Hz.



CAUTION

DO NOT USE AN ADAPTER PLUG OR EXTENSION CORD TO CONNECT THE ADAPTER TO THE WALL RECEPTACLE.

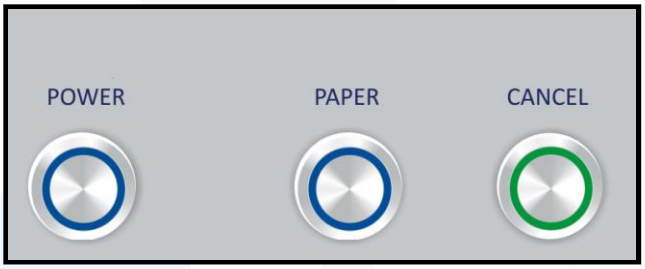
DO NOT USE OUTLETS CONTROLLED BY WALL SWITCHES.

DO NOT USE AN OUTLET THAT SHARES THE SAME CIRCUIT WITH LARGE ELECTRICAL MACHINES OR APPLIANCES.

The Printer connects to the computer through the USB port **[2**].
A Network port **[3]** is provided when operating in a network environment. See "Network Connection Setup" in the "Using the Printer Toolbox" section.

Control Panel Button/LED Indicators

The Control Panel has 3 buttons with LED indicators.



POWER (ON/OFF) – Turns Printer power ON and OFF. Turn off power for cleaning and maintenance

PAPER (STOP JOB/RESUME) – Stops Paper Feed or Resumes Printing.

- **Press to Stop Paper Feed Immediately.** Printer will clear media in Printer and stop.
- **Press to Resume Printing.** Restart printing after a paper feed error (such as a paper jam or running out of paper).

CANCEL (CANCEL JOB) – Cancels a Job.

- **Press to Cancel a Job.** Once the Printer has stopped, pressing this button clears job from Printer and Print Queue in Driver. **NOTE:** Cancelled Jobs must be reloaded before printing can resume.

PRINTER OPERATION INDICATORS – NORMAL

PRINTER STATUS	POWER (ON/OFF)	PAPER (STOP/RESUME)	CANCEL (CANCEL JOB)
Power cord plugged in, Main Power Switch ON, Control Panel Power Switch OFF.	LED OFF	N/A – LED OFF	N/A – LED OFF
Unit Powered Up, No Job Loaded.	LED ON, steady	LED OFF Press and hold for 3 seconds to feed single piece at 6 inches/second.	N/A – LED OFF
Job Loading	LED ON, steady	LEDs flashing simultaneously ON/OFF once/second.	
Printing	LED ON, steady	LEDs flashing alternately ON/OFF once/second.	
Job Loaded, Printer Stopped.	LED ON, steady	LED ON, flashing ON/OFF once/second.	LED OFF.
Maintenance Running	LED ON, steady	LEDs flashing simultaneously ON/OFF once/second. Wait until Maintenance stops running.	

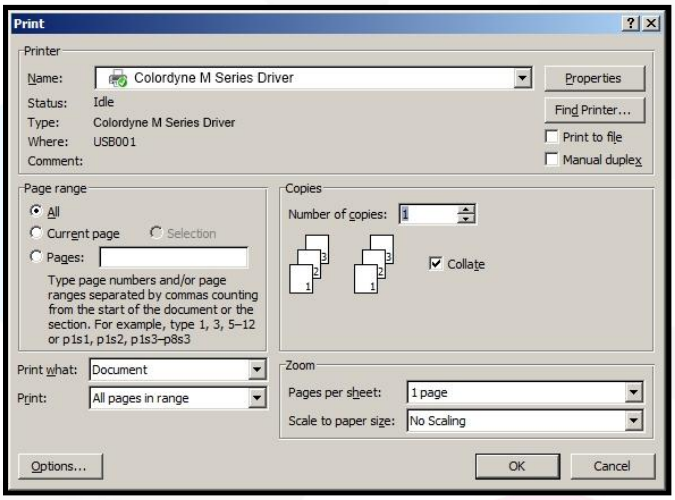
PRINTER ERROR INDICATORS			
PROBLEM	**POWER (ON/OFF)**	**PAPER (STOP/RESUME)**	**CANCEL (CANCEL JOB)**
Paper Feed Times Out/Out of Paper	LED ON, steady	LED ON, flashing about 3 times/second.	LED OFF
ACTION:	Press **PAPER** to pause job. Check/clear paper jams or reload Feeder. If OK, press **PAPER** to resume printing. If not fixed, press **CANCEL** to cancel the job.		
Sensor(s) Covered	LED ON, steady	LED ON, steady	LED OFF
ACTION:	Press **PAPER** to pause job. Remove media covering Sensor or clean Sensor. If OK, press **PAPER** to resume printing. If not fixed, press **CANCEL** to cancel the job.		
Tilt Error	LED ON, steady	**LEDs flashing fast alternately ON/OFF about 3 times/second.**	
ACTION:	Press **PAPER** to stop feed. Check that Printer is on a stable, level surface. If OK, press **PAPER** to resume printing. If not fixed, press **CANCEL** to cancel the job.		
Ink Tank Missing	LED ON, steady	LED OFF	LED ON, steady.
ACTION:	Press **POWER** to turn off Printer. Install missing Ink Tank(s) (*see Replacing Ink Tanks in Maintenance*)		
Other Errors	LED ON, steady	**LEDs flashing fast simultaneously ON/OFF about 3 times/second.** .	
ACTION:	Press **PAPER** to stop feed. Try to determine and correct the problem. If OK, press **PAPER** to resume printing. If not fixed, press **CANCEL** to cancel the job.		

MORE TROUBLESHOOTING GUIDES ON on page 14.

Printer Driver Properties

The Printer Driver for the Colordyne 1600-S works the same as any other Printer Driver for Windows. It does have some enhancements to help you maximize the ability of the Printer to print variable addressed pieces quickly and efficiently.

Windows XP, Vista, Windows 7: Once the job is set up, click **File**, then **Print**. The window on the right will open. Make sure the M Series Driver is the selected Printer. Clicking on **Properties** opens the "Properties" window.

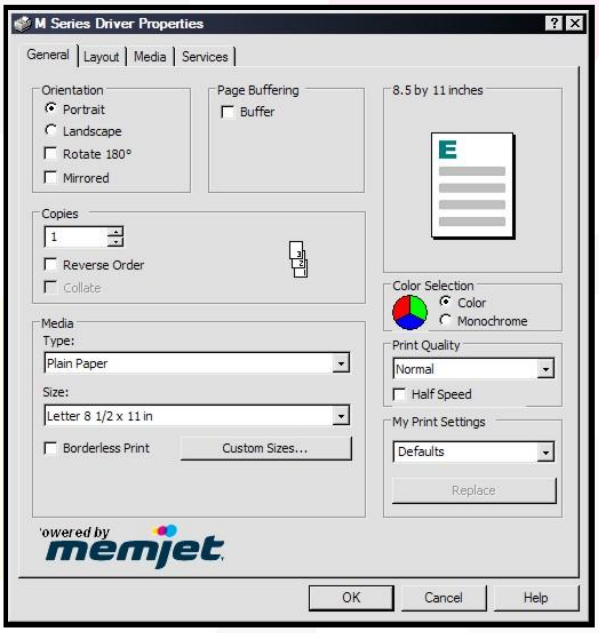


General Tab

The **General** tab lets you select:

- **Orientation** – Portrait (Default), Landscape, Rotate 180° and Mirrored.
- **Page Buffering** – Allows the entire print job to load before printing starts.
- **Copies** – Lets you choose the number of copies to be printed.

NOTE: Reverse Order is set as the default. This means the job starts printing from the last page. The entire job will load into the Printer before printing starts. Large jobs may take some time to load. Unchecking the box prints the job starting with the first page. Printing starts as soon as first page loads.



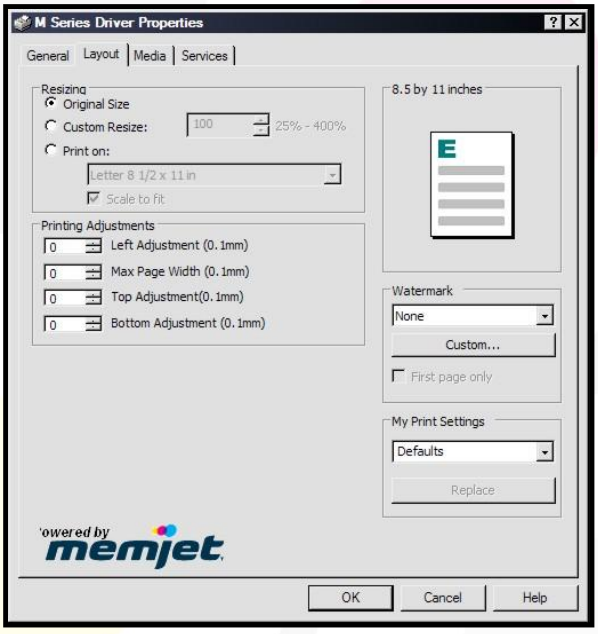
- **Media** – Choose a type of media or different size media than the document was originally designed for. **Type:** Chart at right lists the media profiles associated with the type of media chosen. **Sizes:** 21 sizes are available. The document is automatically resized to fit the new media. You can also create and save a Custom Size to suit your needs. **NOTE: Do not exceed maximum paper size for the Printer.**

MEDIA TYPE	MEDIA PROFILE
Plain Paper Bright White Paper Transparency Film	Plain Paper
Premium Photo Paper Glossy Photo Paper Glossy Label Glossy	Premium Glossy Label
Photo Greeting Cards Glossy Photo Paper Semi-gloss Postcards Glossy Brochure Glossy	Glossy Label
Photo Paper Matte Label Matte Photo Greeting Cards Matte Brochure Matte Premium Inkjet Paper Presentation Paper Other Inkjet Paper Postcards Matte	Matte Coated Label

- **Color Selection –** Set Printing for Color or Monochrome.
- **Print Quality** – Select **Normal** or **Best**. **Normal** is 1600 x 800 dpi, checking the Half Speed box slows printing for higher quality on glossy stock. **Best** setting is 1600 x 1600 dpi, for use when high quality images are required.
- **My Print Settings** – Access your saved custom print settings for various jobs.

Layout Tab

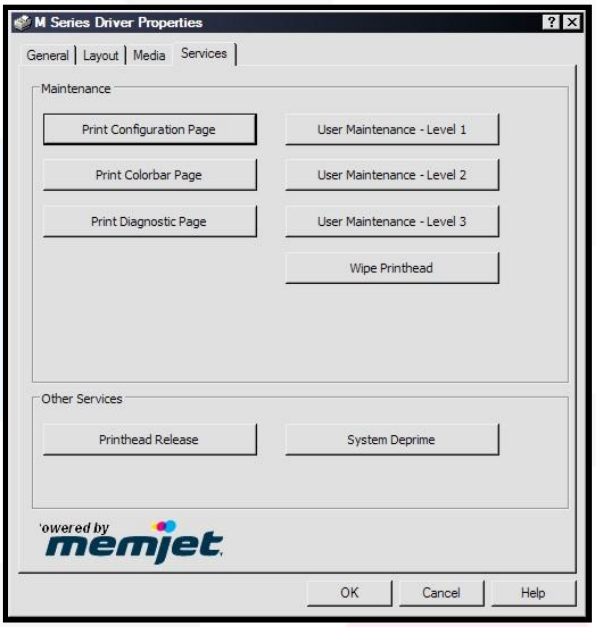
Layout allows you change how the document prints without changing the original document.



- **Resizing** – lets you specify the **Original Size** or **Custom Resize:** lets you resize the original as a% of normal size. The Printer will print the document in the size you selected regardless of the size of the paper selected. **Print on:** lets you specify the particular size of paper that you want to print on regardless of the size of the original document. Checking "Scale to Fit" automatically resizes the document to fit on the new page size.
- **Printing Adjustments** – Allows you to make minor positioning changes to the print area in relation to the media if needed.
  NOTE: Only works on jobs using less than the full print area (less than 8.5" wide).
- **Watermark** – Prints a light background watermark in the paper while printing the original document. When this option is selected the "First page only" option prints the watermark on the first page, but not subsequent pages. Unchecking prints the watermark on all pages. The Custom button lets you create a new watermark or edit an existing watermark, including font selection, color, size and printing angle.
- **My Print Settings** – Access your saved custom print settings for various jobs.

Services Tab

Services allows you to:



- **Print Configuration Page** – Prints out the current configuration of the Printer including current Firmware Version, Network Connection, printer Serial Number and more.
- **Print Sample Page** – Prints type and color bands to check print quality.
- **Print Diagnostic Page** – Shows basic Printer information, memory, Network Settings, Event Log and RAM partitions.
- **User Maintenance**, Levels 1 to 3
  Level 1 – Circulates ink, wipes and cleans the Printhead.
  Level 2 – Runs cleaning and wiping routine twice for better flushing and cleaning.
  Level 3 – Runs the cleaning routine multiple times for the most thorough flushing and cleaning of the Printhead.

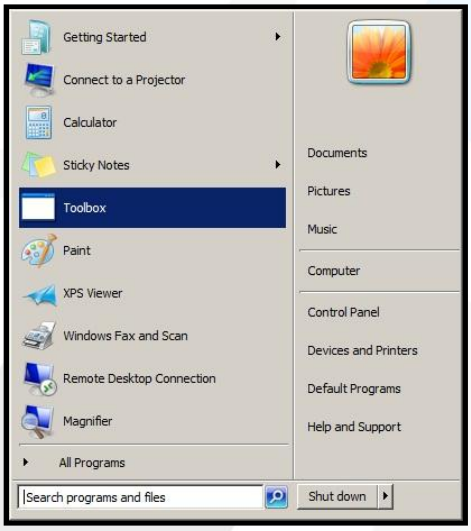
  NOTE: If the Printer is connected to a network and the Driver buttons fail to activate the cleaning process, you can perform the same functions from the Toolbox User Interface.
- **Wipe Printhead** – Wipes and cleans excess ink from the Printhead Cartridge.
- **Printhead Release** – Performs the same task as the Cover Release Button on the Printer. Deprimes the ink from the system and opens the Printhead Cover for removing/installing the Printhead Cartridge.
- **System Deprime** – Drains the ink in the lines back into the Tanks before servicing the Printhead Cartridge or prepping the Printer for storage or transport.

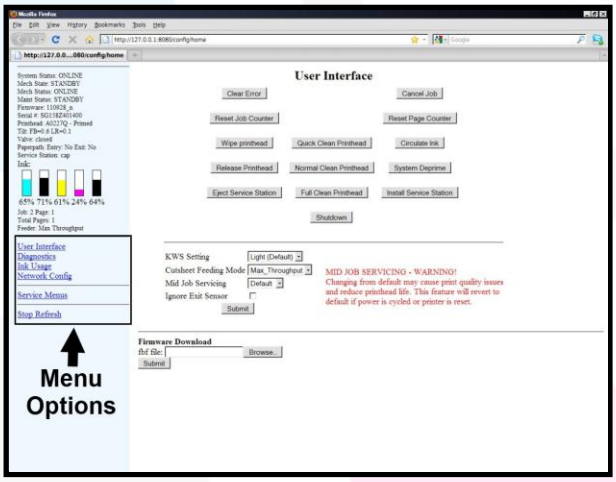
Using the Toolbox

Once the Printer Driver is installed you have access to the Toolbox. The Toolbox lets you monitor ink usage, perform diagnostic checks, print reports and run maintenance tasks on the Printer from your computer.

To open the Toolbox:

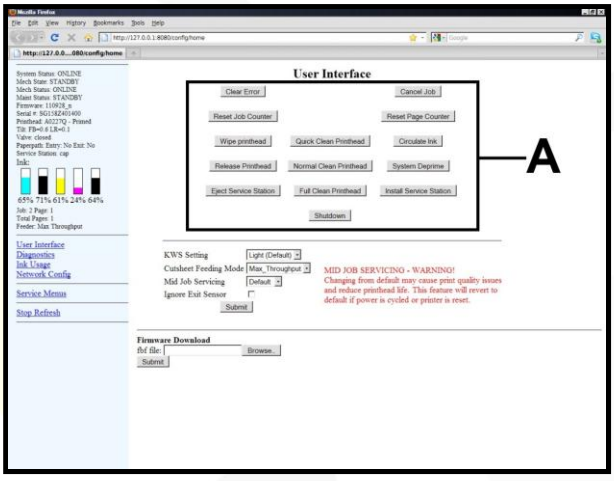
Click **Start** from the Windows taskbar, go to All Programs, open the printer folder, then click on "Toolbox". When the "User Interface" window opens you will find a series of Menu Options you can click on at the lower left of the screen. You can check the Printer Status in the upper left part of the screen.





User Interface

[A] Screen Buttons: Let you perform maintenance and operating tasks. You can use the screen buttons to Clear Errors, Cancel a Job, Reset the Job Counter, and Reset the Page Counter. You can also:



Wipe Printhead – Activates the Service Station to wipe the Printhead.

Release Printhead – Performs the same task as the Cover Release button on the Printer. Pumps the ink back into the Ink Tanks and opens the Printhead Cover to remove/install the Printhead Cartridge.

Circulate Ink – Purges air from the lines and primes the system after replacing the Ink Tanks or Printhead Cartridge.

System Deprime – Pumps the ink back into the Ink Tanks prior to replacing the Printhead Cartridge or transporting the Printer.

Cleaning Buttons: Provide 3 levels of cleaning for the Printhead Cartridge. These work the same way as the 3 Maintenance Level Buttons in the Printer Driver:

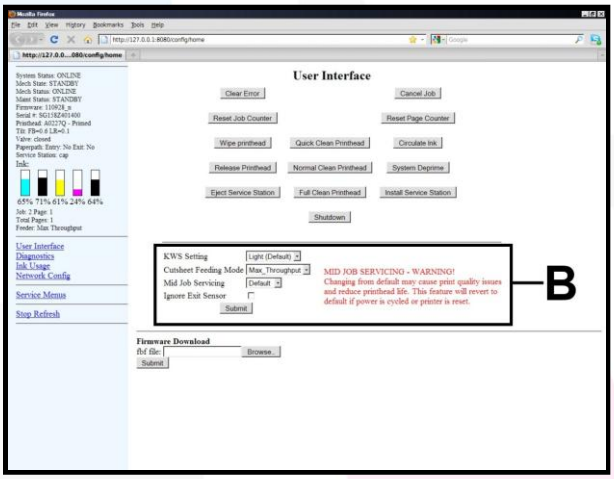
Quick Clean Printhead – Circulates ink, wipes and cleans the Printhead Cartridge.
Normal Clean Printhead – Runs cleaning and wiping routine twice for better flushing and cleaning.
Full Clean Printhead – Runs the cleaning routine multiple times for the most thorough flushing and cleaning of the Printhead.

Eject Service Station – Releases the Service Station for removal for cleaning, repair or replacement.

Install Service Station – Pulls the Service Station back into place after cleaning, repair or replacement.

Shutdown the Printer – Turns the Printer OFF from your computer.

[B] Basic Printer Settings – Lets you adjust automated service and cleaning intervals, adjust the feeder speed for a job and adjust the Printer for pre-printed media.



KWS Setting – (Keep Web Spitting) Keeps Printhead hydrated while running a job. Select from 4 settings to determine how much ink will "spit" from the Printhead Nozzles. Set in conjunction with **"Mid Job Servicing"** which determines the frequency of the Printer stopping for self-servicing during a job.

Mid Job Servicing – Sets the frequency of automatic maintenance cycles run during a job. **NOTE: Changing the setting from "Default" may cause print quality issues and reduce Printhead life.**

Cutsheet Feeding Mode – Permits you to change how the Printer feeds media depending on the type of job you are running:

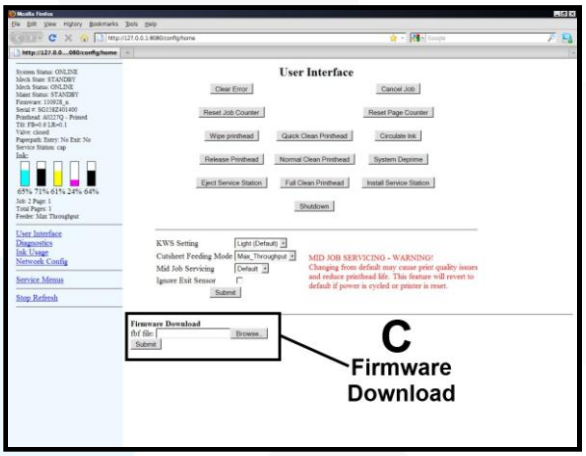
Safe Feed – Leaves a larger gap between pieces to reduce overprinting onto the next piece. This setting is useful for more intricate printing jobs or jobs requiring the best print quality.

Max_Throughput – Allows fastest printing speed. The Printer works like a stream feeder. This setting is useful for simple printing jobs.

NOTE: These two settings can be changed "on the fly" without stopping the job. **Example:** While running a job in **"Max-Throughput"** you find that the media is jamming excessively due to speed. Open the Toolbox, check **"Safe Feed"** and click **"Submit"**. The Printer will automatically adjust without having to pause or stop the job.

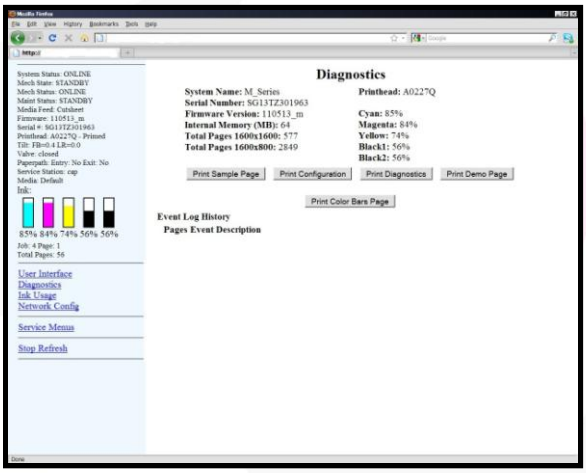
Ignore Exit Sensor – Checking this box turns the Exit Sensor OFF. The Sensor may not "see" the trailing edge of a piece of pre-printed media if the back of that media is dark or black. (**Example:** adding addresses to a pre-printed postcard.) This may "fool" the Sensor into thinking a jam has occurred. Turning the Sensor OFF prevents these "false jams" from stopping the job.

[C] Firmware Download – Get the latest version of firmware for your Printer.
How to download new firmware:



1. When you are notified that new firmware is available for your Printer, download the *.fbf file and save it to your desktop.
2. Open the Toolbox. On the "User Interface" page, find **Firmware Downloads.**
3. Click the "Browse" button and find the file you just saved to your desktop.
4. Click "Submit". **DO NOT touch the Printer until the firmware is loaded!** A message will appear on your screen warning you not to unplug or shut off the Printer.
5. Once the firmware finishes loading (*about 5-10 minutes*), the Control Panel lights and Printer shuts OFF. Press the Control Panel Power button to restart the Printer and installation is complete.

Diagnostics



From this screen you can see the current status of your Printer. You can also:

Print Sample Page – Prints type and color bands to check print quality.

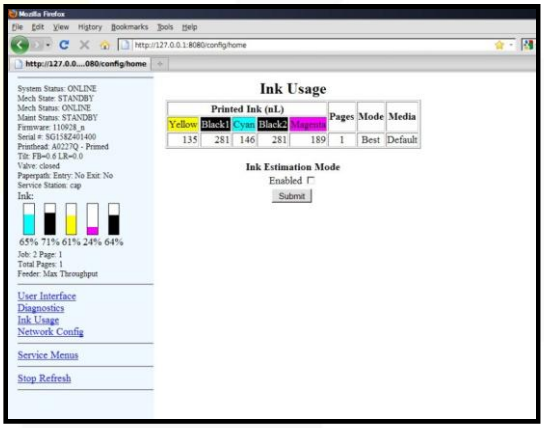
Print Configuration Page – Shows the current configuration of the Printer including Firmware Version, Network Connection, Printer Serial Number and more.

Print Diagnostic Page – Shows basic Printer information, memory, Network Settings, Event Log and RAM partitions.

Print Demo Page – Prints a 4-color sheet.

Print Color Bars Page – Shows how well Printhead is printing.

Ink Usage



Allows you to monitor the estimated amount of ink left in each of the five Ink Tanks. You can monitor ink consumption and schedule Tank changes (saving down-time during a print run.) **NOTE: Ink Usage only works when you start with a new Ink Tank and leave it in the Printer.**

Ink Estimation Mode – Checking this box lets you predetermine how much ink a given job may use prior to printing. This can be useful for determining per piece costs. The job is sent to the Printer and loads, but does not print. Once the job is loaded, the chart shows the amount of ink (by color) that the job will use. **NOTE: The estimating process will take as long as the job would take to print (i.e., if the job would take 1 hour to print, the estimate will take 1 hour to display.)**

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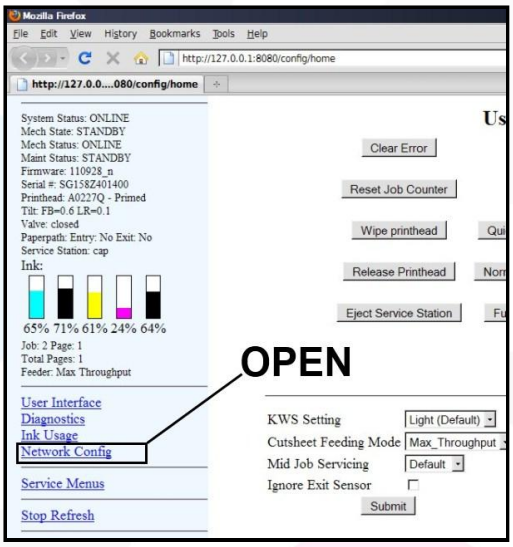
Network Configuration

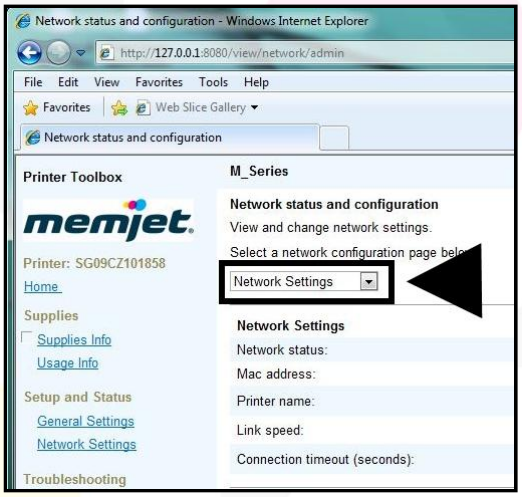
Permits you to view, enter or change settings to connect the Printer to your network.

Network Connection Set Up:

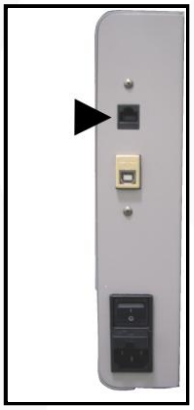
1. The Printer is still connected to the computer via the USB cable.
   To connect the Printer to a network, open the Toolbox. On the "User Interface" page, click **Network Config**. This will open the "Printer Toolbox Home" page.



2. The "Network Status and Configuration" page opens. Your IT person can choose the **Network Settings** box to enter the correct settings for your network.

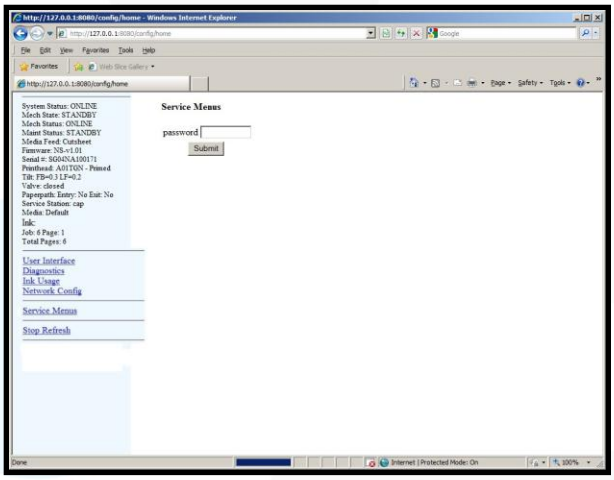


3. Connect Ethernet cable to Network Port on Rear Panel of Printer.

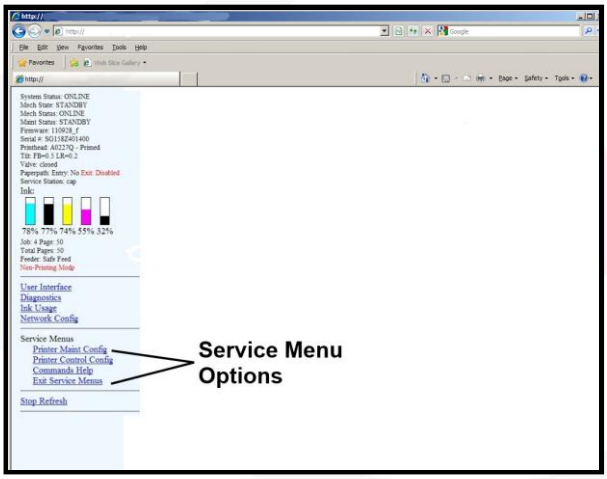


Service Menu

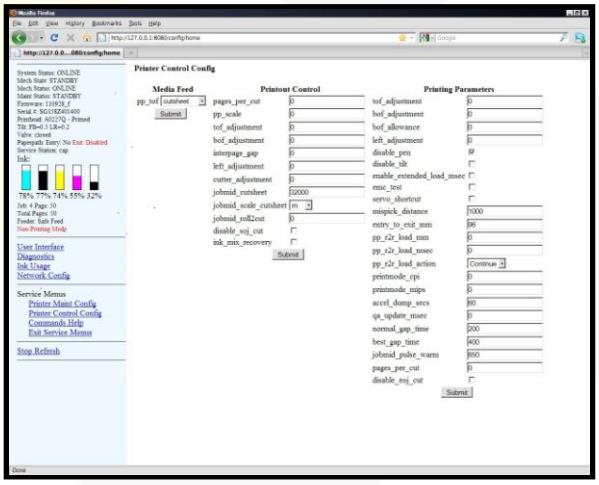
For authorized personnel only. Provides access to more advanced Printer Control and Maintenance menus. Enter password to view the Service menus.



You will notice that several new menu options are available: “Printer Maint Config,” “Printing Control Config,” “Exit Service Menu, ” and “Commands Help.”



Printing Control Configuration Screen: Allows you to make fine adjustments as to how a job is fed into and through the Printer and how it will print.



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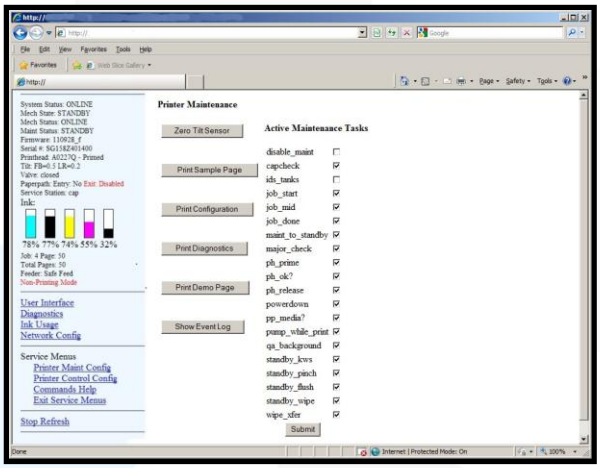
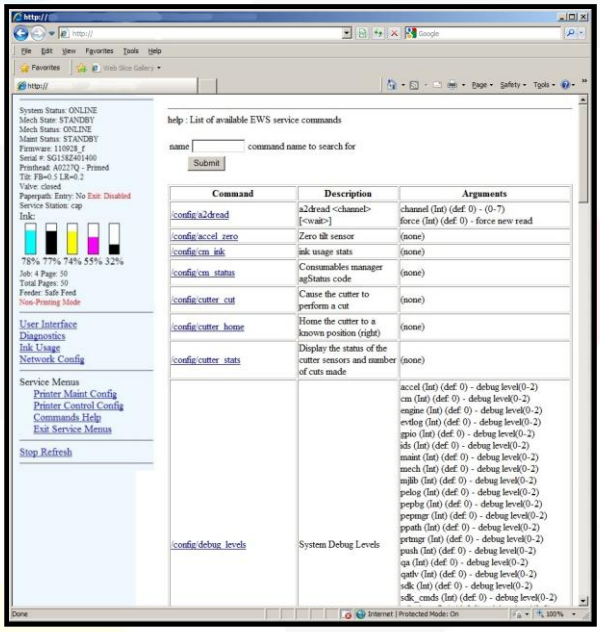
Printer Maintenance Configuration Screen: Allows you to enable or disable certain maintenance functions.



Printer Commands Help Screen: Provides a list and descriptions of available EWS service commands


help : List of available EWS service commands
name
command name to search for
Submit
Command
Description
Arguments
/config/a2dread
a2dread <channel> [<wait>]
channel (Int) (def: 0) - (0-7)
force (Int) (def: 0) - force new read
/config/accel_zero
Zero tilt sensor
(none)
/config/cm_ink
ink usage stats
(none)
/config/cm_status
Consumables manager agStatus code
(none)
/config/cutter_cut
Cause the cutter to perform a cut
(none)
/config/cutter_home
Home the cutter to a known position (right)
(none)
/config/cutter_stats
Display the status of the cutter sensors and number of cuts made
(none)
/config/debug_levels
System Debug Levels
accel (Int) (def: 0) - debug level(0-2)
cm (Int) (def: 0) - debug level(0-2)
engine (Int) (def: 0) - debug level(0-2)
evtlog (Int) (def: 0) - debug level(0-2)
gpio (Int) (def: 0) - debug level(0-2)
ids (Int) (def: 0) - debug level(0-2)
maint (Int) (def: 0) - debug level(0-2)
mech (Int) (def: 0) - debug level(0-2)
mjlib (Int) (def: 0) - debug level(0-2)
pelog (Int) (def: 0) - debug level(0-2)
pepbg (Int) (def: 0) - debug level(0-2)
pepmgr (Int) (def: 0) - debug level(0-2)
ppath (Int) (def: 0) - debug level(0-2)
prtmgr (Int) (def: 0) - debug level(0-2)
push (Int) (def: 0) - debug level(0-2)
qa (Int) (def: 0) - debug level(0-2)
qatlv (Int) (def: 0) - debug level(0-2)
sdk (Int) (def: 0) - debug level(0-2)
sdk_cmds (Int) (def: 0) - debug level(0-2)

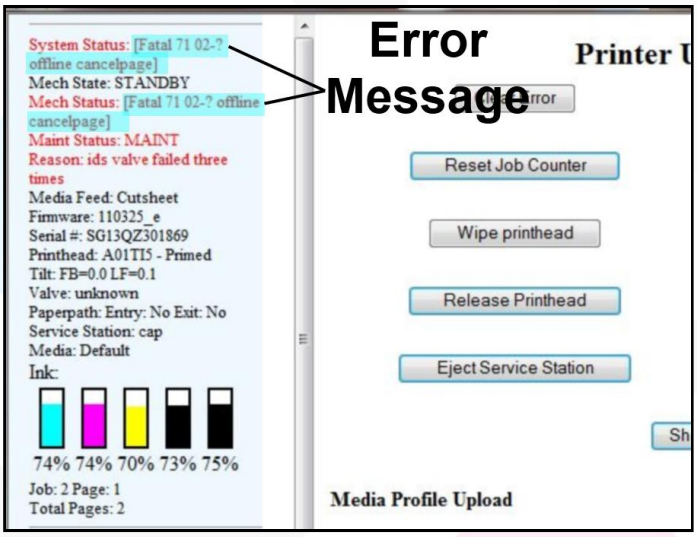
Clicking **"Exit Service Menus"** closes the Service Menu options and takes you back to the "Printer User Control" screen.

Printer Toolbox Error Messages

The following procedures should resolve Printer issues when these error messages appear in the Printer Toolbox.

[*Fatal 71 02-? offline cancelpage*]

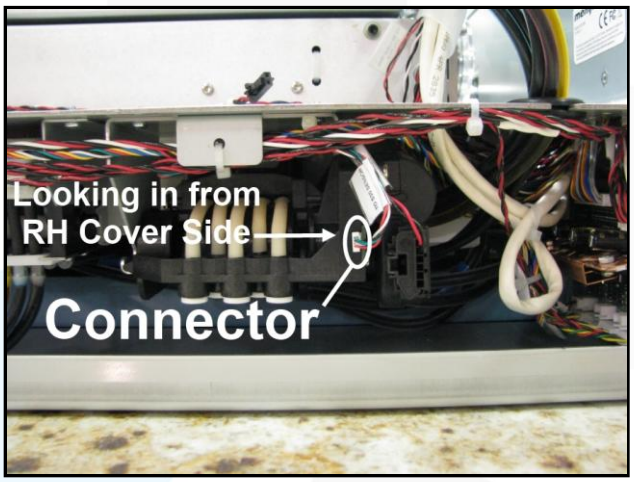
This message appears in the "System Status" and "Mech Status" lines in the top left corner of the Printer Control Screen in the Printer Toolbox. This may indicate that the Dual Pinch Valve Printed Circuit Assembly connector may be loose or disconnected.



1. **Shut off the Printer.**
   [A] Press the Power Button on the Control Panel.
   [B] Wait for the Printer to Stop Processing.
   [C] Press the Main Power Switch on the Rear Panel.
   [D] Unplug the power cable.

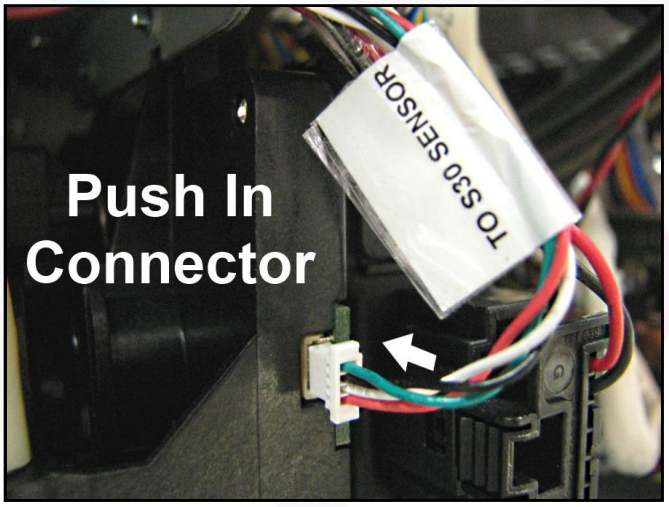
2. Remove the Right-hand Side Cover. Remove the (3) screws at the top of the Cover. Then remove the (3) screws from the bottom of the Cover.

3. Look through the open side of the Printer. The Dual Pinch Valve connector (*white*) is located just behind the Bottom Fan Duct.



4. Use a long-blade flat-tip screwdriver to carefully reach across the Print Engine and push in or reconnect the small white PCA connector.

5. Reinstall Right-hand Side Cover.



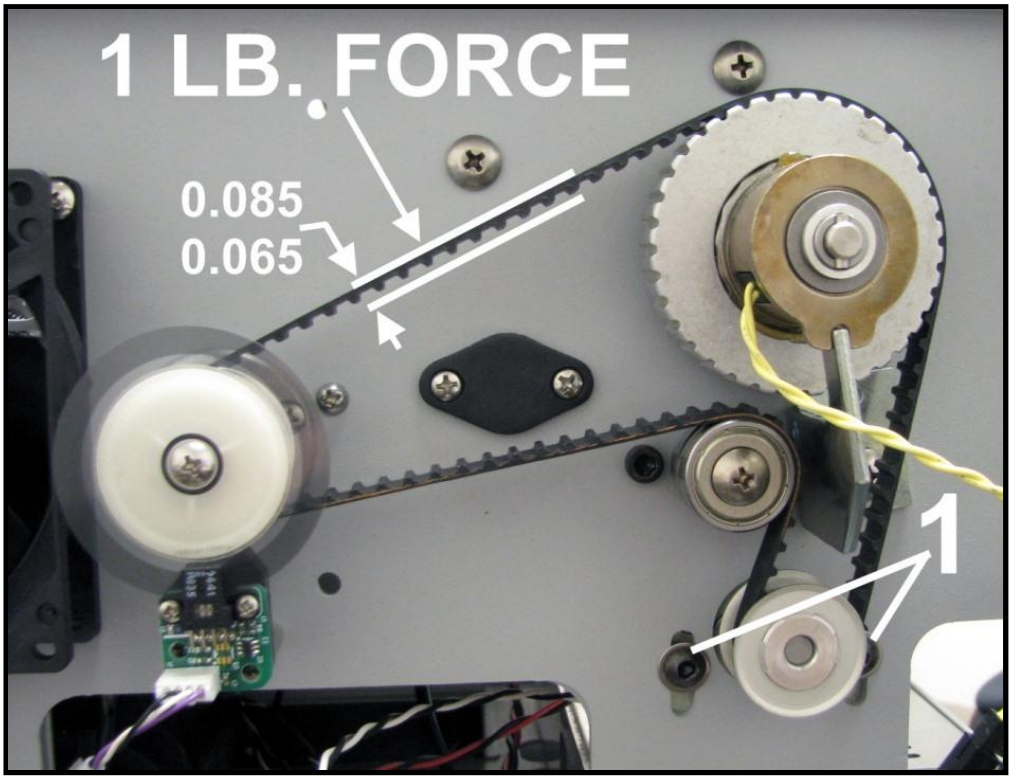
SECTION 4 – *Adjustment*

Colordyne 1600-S Drive Belt Tension Adjustment

REQUIREMENT: To ensure the Drive Belt has the proper tension.

ADJUSTMENT:

1. Unplug the machine and remove the Right-hand Side Cover. (6 screws)
2. Loosen the two screws **[1]** that mount the Main Drive Motor to the Frame.
3. Move the Motor up or down to obtain a Belt deflection of between 0.085" and 0.065" when a force of 1 lb. is applied as shown.
4. Tighten the two motor mount screws **[1]**.
5. Recheck the adjustment.
6. Replace the Right-hand Side Cover.



SECTION 5 – *Disassembly/Assembly Procedures*

Printer Basic Disassembly

- **Turn Power OFF**
- **Disconnect Power Cord**
- **Disconnect Interface Cable**

Replacing the Separator Tips

1. Unplug the Printer before replacing the Separator Tips.
2. Loosen the Separator Locking Knob and raise the Separator to its maximum raised position.
3. Use a Phillips screwdriver to remove the screw holding the metal Cover over the Separator. Use the tip of the screwdriver to pry the Separator Tip out of its Holder.
4. Replace the Separator Tip, reinstall the metal Cover and screw. **Do not over tighten**.

Service Disassembly Procedures

WARNING

THE FOLLOWING DISASSEMBLY SHOULD ONLY BE DONE BY A QUALIFIED, TRAINED SERVICE REPRESENTATIVE.

CAUTION

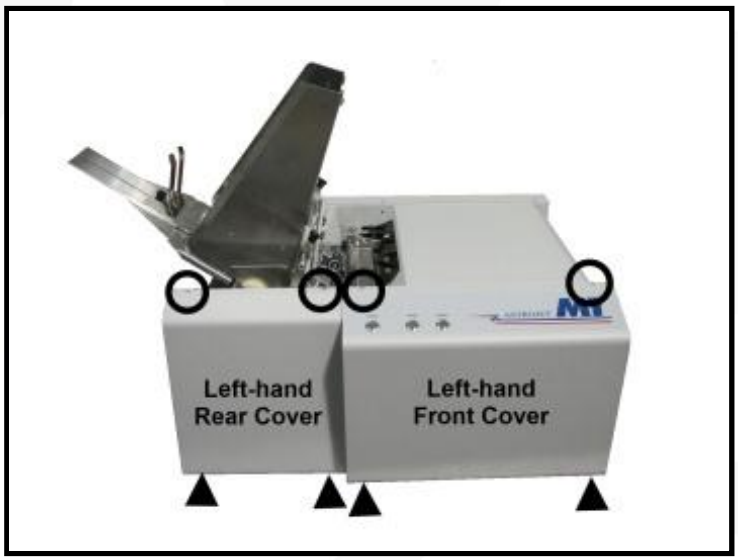
ALWAYS WEAR A WRIST STRAP THAT IS GROUNDED WHEN HANDLING ELECTRONIC DEVICES.

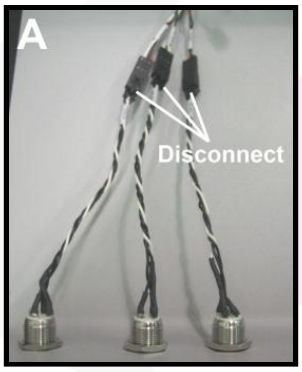
Left-hand Side Covers

1. Remove (2) screws at the top and bottom of the Left-hand Rear Side Cover. Remove the Cover.

2. Remove (2) screws at the top and bottom of the Left-hand Front Side Cover. Pull Cover away from machine slightly.
   [A] Disconnect the wires attached to the Power, Paper and Cancel Buttons. Carefully remove the Cover. **NOTE:** Wires are labeled to simplify reconnection.

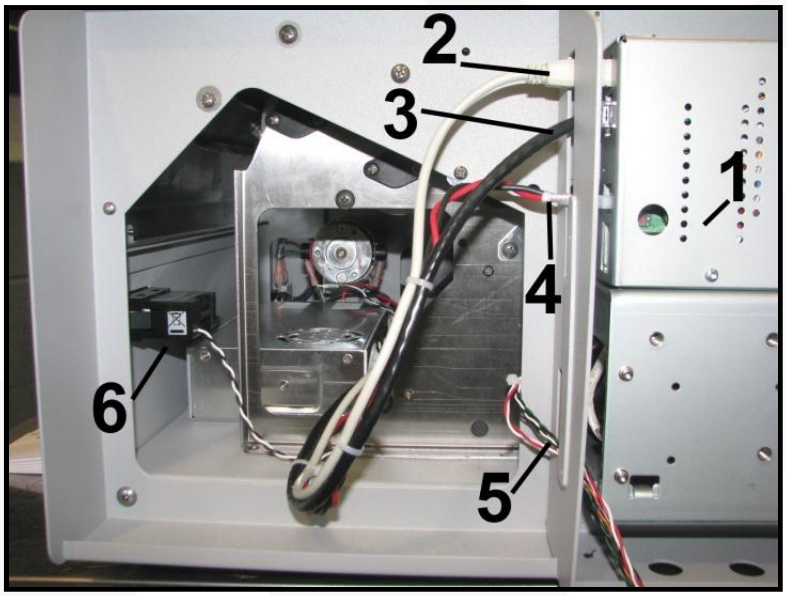
3. Reassemble in reverse order.
   NOTE: Make sure that the wires are connected to the correct Control Panel Button.





Components under Left-Hand Side Covers

1. Main Print Engine Printed Circuit Board
2. Printed Circuit Board USB Connector
3. Printed Circuit Board Network Connector
4. Printed Circuit Board Main Power Connector
5. Wiring harness for Control Panel Buttons
6. LCD Counter

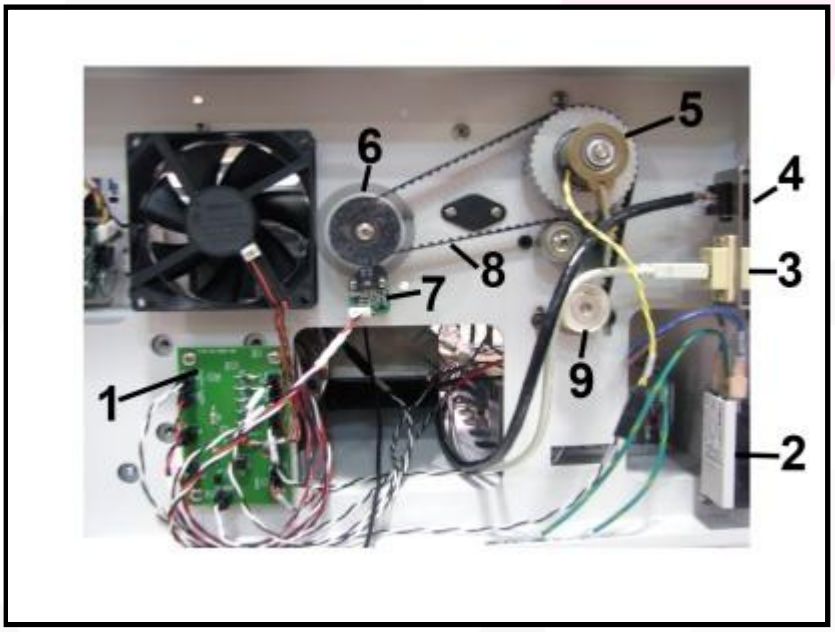


Right-hand Side Cover

1. Remove the (3) screws at the top of the Cover. Then remove the (3) screws from the bottom of the Cover.

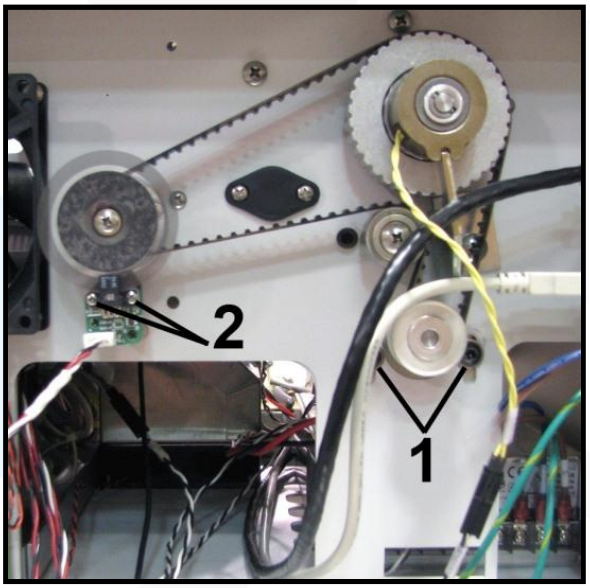
Major Components under Right-hand Side Cover

1. Interface PC Board
2. Main Power Plug, Switch, Fuse
3. USB Connector
4. Network Connector
5. Feed Clutch and Feed Roller Assembly
6. Encoder
7. Encoder Sensor
8. Drive Belt
9. Drive Motor & Roller Drive Pulley



Replacing Motor Drive Belt or Motor

1. Remove Right-hand Side Cover.
   NOTE: To remove the Motor, remove the six screws holding the Rear Panel Cover.
2. **[1]** Loosen the (2) Motor mounting screws to relieve tension on the Motor Drive Belt.
   [2] Then remove the (2) screws and the Encoder Sensor.
   NOTE: To remove the Motor, disconnect the wires and remove the two mounting screws.



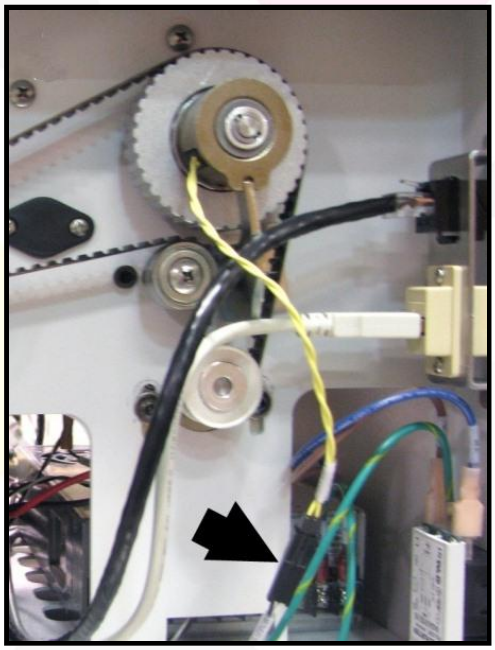
CAUTION

DO NOT SCRATCH OR OTHERWISE DAMAGE THE ENCODER WHEEL WHEN REMOVING THE MOTOR DRIVE BELT.

4. Carefully remove the Motor Drive Belt by lifting it over and around the Encoder Wheel.
5. Replace the Belt in reverse order, and then adjust the Belt per the adjustment instructions in ***Section 4***.

Replacing the Clutch

1. Remove Right-hand Side Cover.
2. Disconnect the Clutch from the wiring harness.



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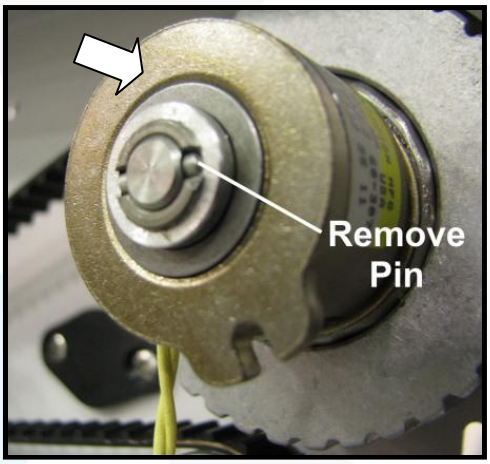
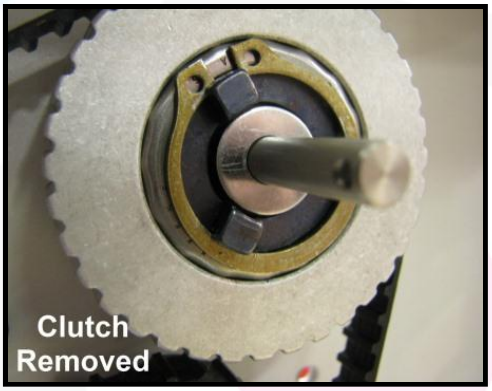
3. Push the Clutch in toward the Pulley to get access to the retaining pin. Remove the retaining pin.



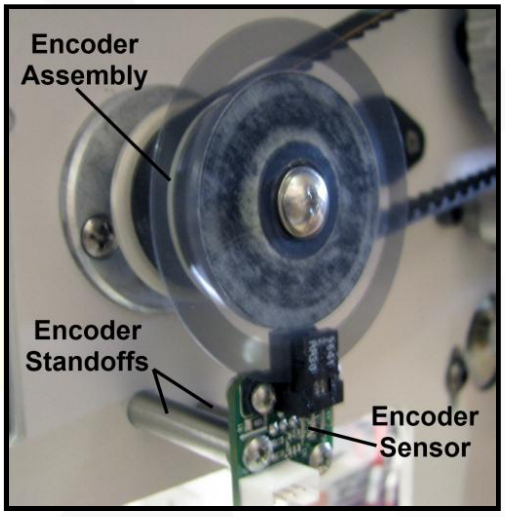
4. Remove the Clutch from the Feed Roller Shaft.

5. Reassemble in reverse order.



Replacing the Feeder Encoder and/or Encoder Sensor

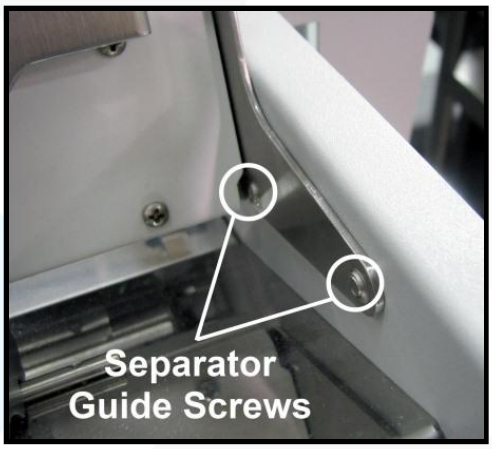
1. **Remove the Encoder Sensor from the Rear Side Frame.**
   [A] Remove the (2) screws holding the Encoder Circuit Board to the two standoffs.
   [B] Remove the Encoder Sensor by carefully moving the Sensor down and away from the Encoder Wheel. **NOTE:** Be very careful not to damage Encoder Wheel.
2. **Remove the Encoder Wheel Assembly from the Pull Out Shaft Assembly.**
   Remove screw and washer from the center of Encoder Wheel. **Do not bend or damage the Encoder during removal.**
3. **To Reinstall:** Insert screw with washer through the Encoder Wheel. Apply Blue Loctite to threads. Insert Screw into threaded end of the Pull Out Shaft.



4. Reassemble in reverse order. **NOTE:** Check that Encoder Wheel and Drive Belt turn freely.

Replacing Feed Rollers

1. Unplug the Printer from power.
2. Follow the instructions above and remove the Right-hand Side Cover, Drive Belt and Clutch before beginning the replacement of the Feed and Forwarding Rollers.
3. Remove the Left-hand Rear Side Cover and set aside.
4. Remove the Side Paper Guides and the Rear Paper Support.
5. Move the Sheet Separators to the "Up" position. Remove two screws from each side of the Separator Guide assembly and remove it from the machine.

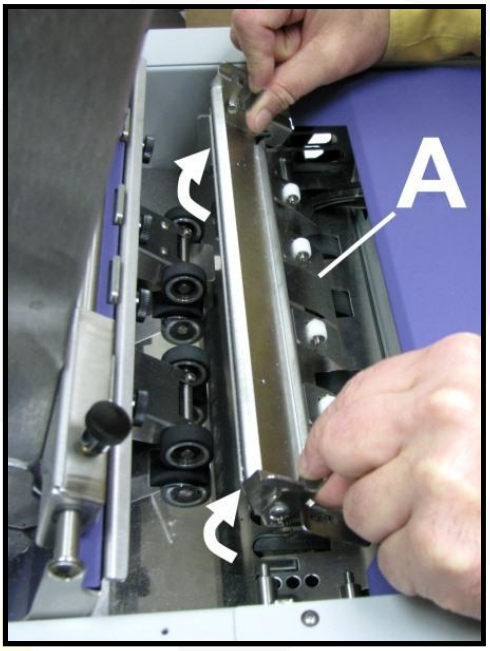


6. Remove Antistatic Brush Assembly **[A]** from mounting studs. Unlatch the two latches (*one on either side of the Assembly*) and lift the Assembly off the four mounting pins as shown. **Do not bend the brushes!**

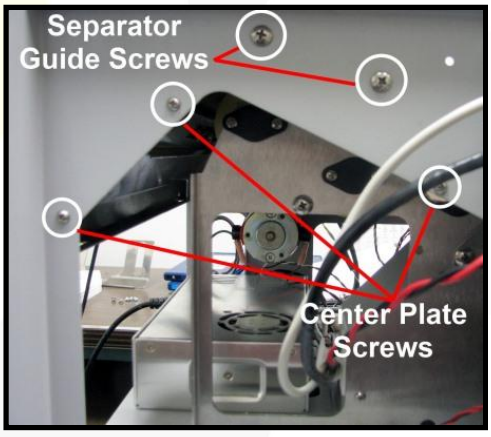
CAUTION

DO NOT BEND, PINCH OR CUT THE INK LINES LOCATED DIRECTLY IN FRONT OF THE BRUSH ASSEMBLY.

NOTE: Make sure Brush Assembly is correctly reinstalled and aligned before starting to print. Assembly should sit flat on transport area surface.



7. Remove the (3) screws on each side of the machine that hold the Center Plate in place. Then remove the (2) screws on the Rear Panel.



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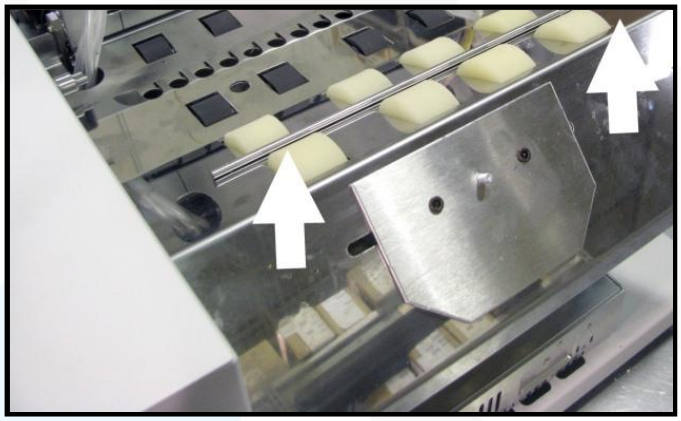
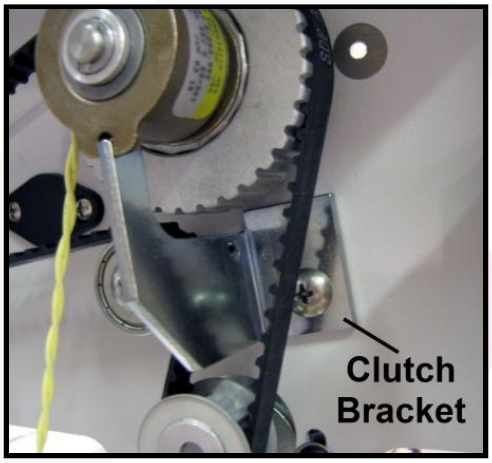
8. Lift the Center Plate Assembly from the machine and set aside.



9. Remove the screw holding the Clutch Support Bracket and remove the Bracket.



10. Remove the Rear Feed Roller Drive Pulley.

NOTE: The spring and washer keep tension on the Clutch so that the pin holding the Clutch remains in place. Reassemble these parts in order shown.

11. Remove the washer and spring from the Feed Roller Shaft.

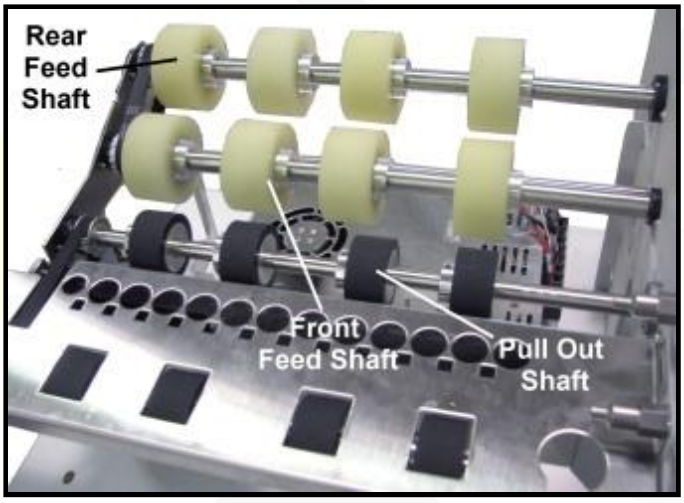
NOTE: The spring and washer keep tension on the Clutch so that the pin holding the Clutch remains in place. Reassemble these parts in order shown.

12. Remove the two screws holding the Bearing Housing to the Side Frame. Push the Rear Feed Roller Assembly toward you to release it from the Bearing on the other side of the machine. Carefully remove the Belt. Then lift the Roller and Shaft Assembly from the machine.

13. The Front Feed rollers and Pull Out Rollers and Shafts can be removed in the same manner as the Rear Feed Rollers and Shaft. Remove the Bearing Cap on the Side Frame, slide the Roller and Shaft toward you, carefully remove the Belts and lift out of the machine.

14. The Rollers are attached to the Shafts with Allen screws. Loosen the screws to slide the Rollers off the Shafts.

15. Reassemble in reverse order. Take care to reinstall the Belts that drive the Rollers during assembly.



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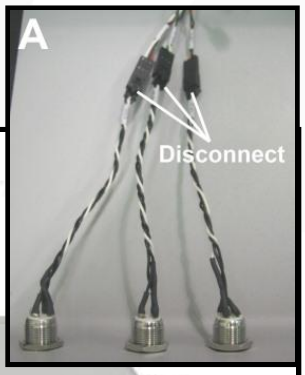
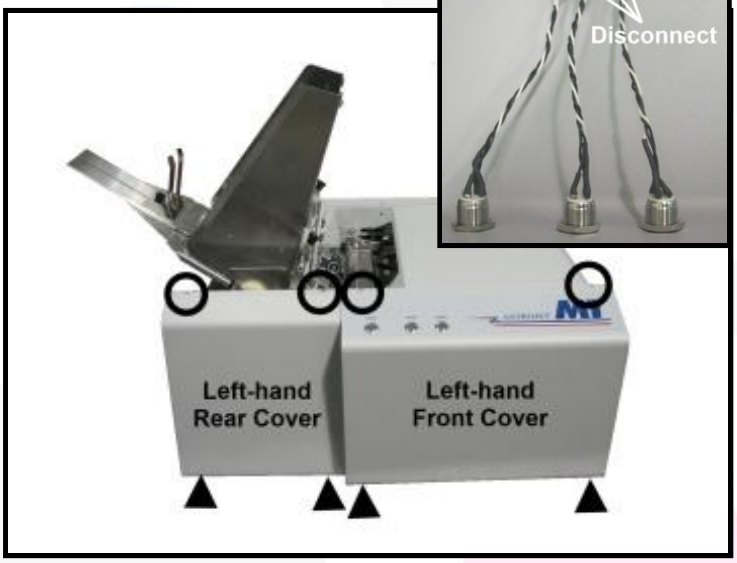
Replacing Delivery Rollers

The Delivery Rollers are part of the Front Center Assembly on the feed end of the Print Engine.

1. Remove the Left-hand Rear Side Cover by removing the (2) screws at the top and bottom of the Cover. Remove the Cover.



2. Remove (2) screws at the top and bottom of the Left-hand Front Side Cover. Pull Cover away from machine slightly.
   [A] Disconnect the wires attached to the Power, Paper and Cancel buttons. Carefully remove the Cover.
   NOTE: Wires are labeled to simplify reconnection.



3. Remove the Right-hand Side Cover. Remove the (3) screws at the top of the Cover. Then remove the (3) screws from the bottom of the Cover.

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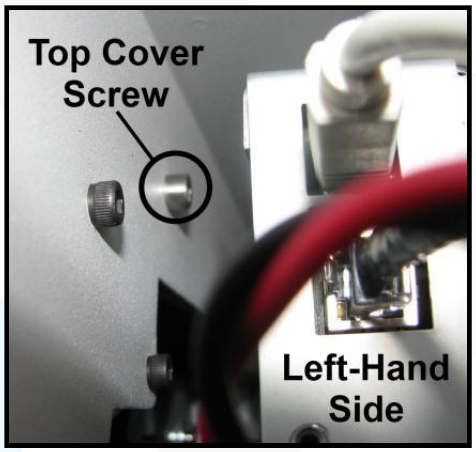
4. **Remove Top Cover.** Remove mounting screw on left-hand side (Control Panel Side). Remove Top Cover and set aside.

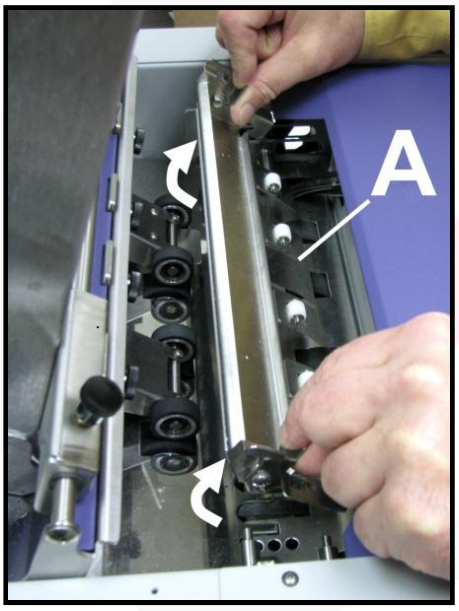


5. **Remove Antistatic Brush Assembly [A]** from mounting studs. Unlatch the two latches (*one on either side of the Assembly*) and lift the Assembly off the four mounting pins as shown. **Do not bend the brushes!**

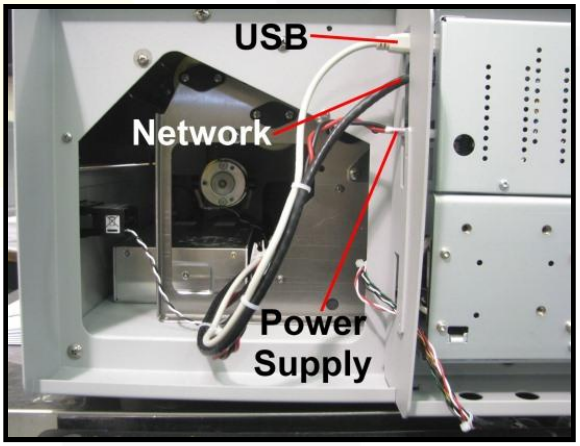
CAUTION

DO NOT BEND, PINCH OR CUT THE INK LINES LOCATED DIRECTLY IN FRONT OF THE BRUSH ASSEMBLY.

NOTE: Make sure Brush Assembly is correctly reinstalled and aligned before starting to print. Assembly should sit flat on transport area surface.

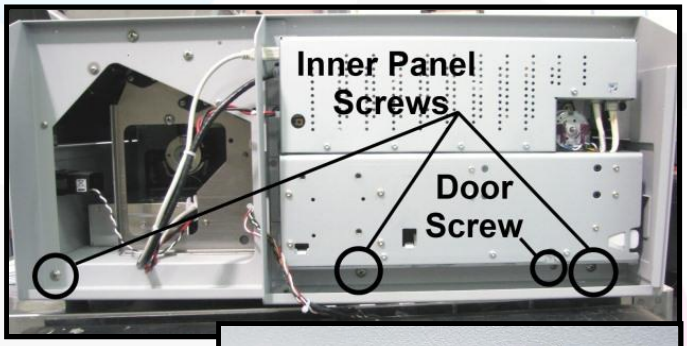


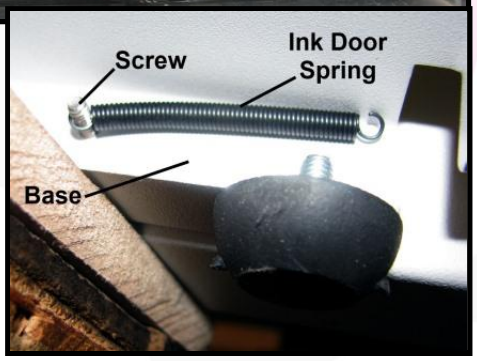
6. Unplug the Network, USB and Main Power connectors from Print Engine Circuit Board.



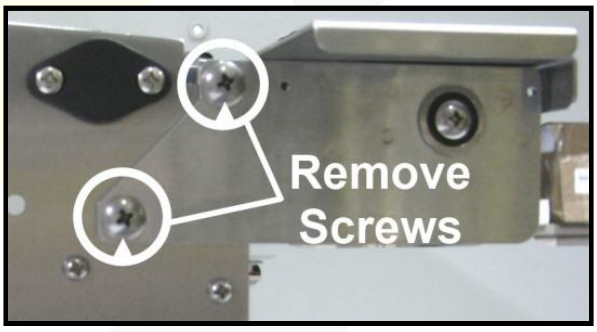
7. **Remove Ink Station Door.** Carefully unhook the (2) springs (*one on each side*), then remove the mounting screw from the left-hand side (Control Panel Side). Remove Door and set aside.

8. **Remove Left-hand Inner Side Frame** (3 screws).)Remove the Ink Tank Door mounting screw. First remove the Door Spring attached to the screw under the Base Plate. Then remove the screw. **NOTE: Be careful not to lose the Ink Door Spring.**

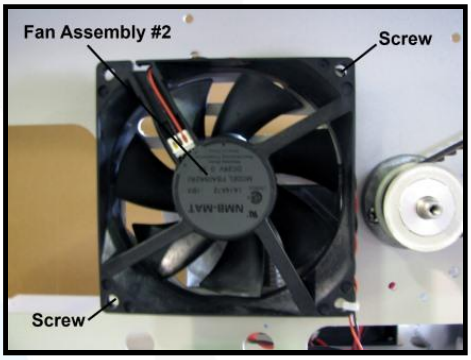


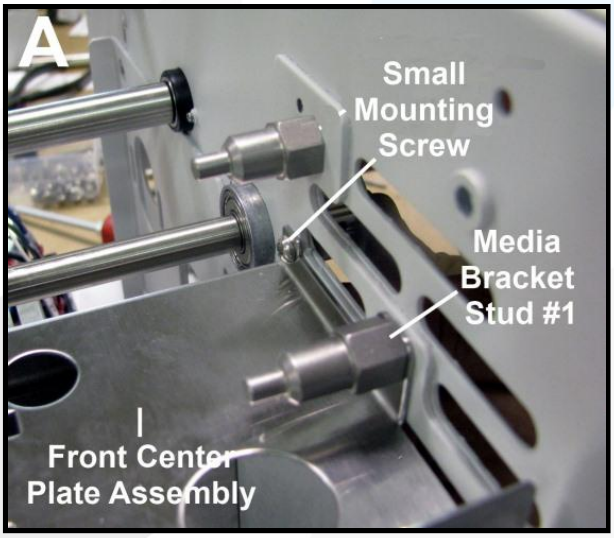


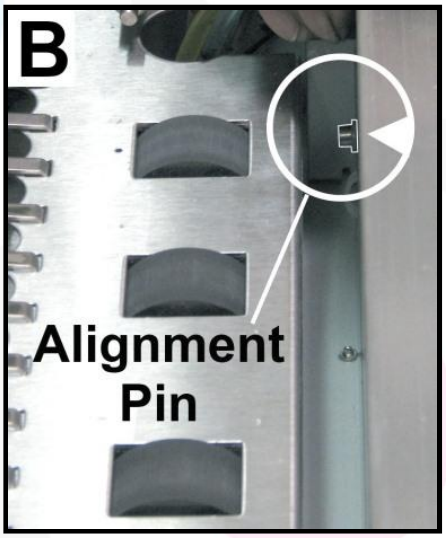
9. Remove (2) Screws holding Front Center Plate Assembly to the Intermediate Side Frame on right hand side.



10. Remove Side Fan (2 screws).
[A] Remove Media Bracket Stud #1 (1 screw) and small screw holding the Assembly on left-hand side.
[B] Take the Front Center Plate by sliding it off the alignment studs on the Print Engine.

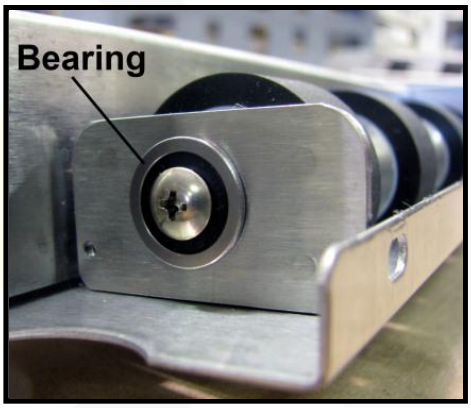






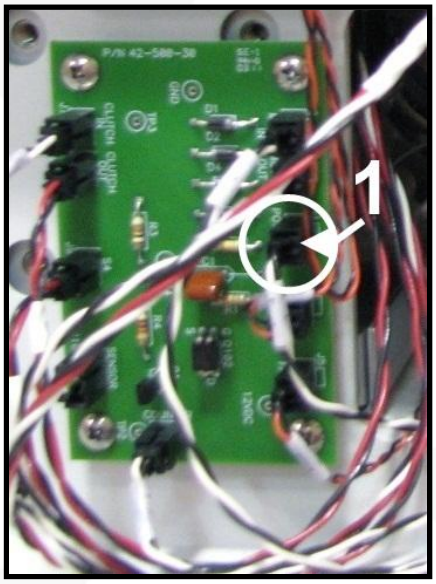
11. Remove Front Center Plate Assembly. Remove the (2) screws holding the Delivery Roller Shaft to the Assembly. NOTE: You will have to remove the Bearing to remove Shaft from the Assembly. The Rollers are attached to the Shafts with Allen screws. Loosen the screws to slide the Rollers off the Shafts.

12. Reassemble in reverse order. Take care to reinstall the Belt that drives the Rollers during assembly.



Replacing Interface PC Board

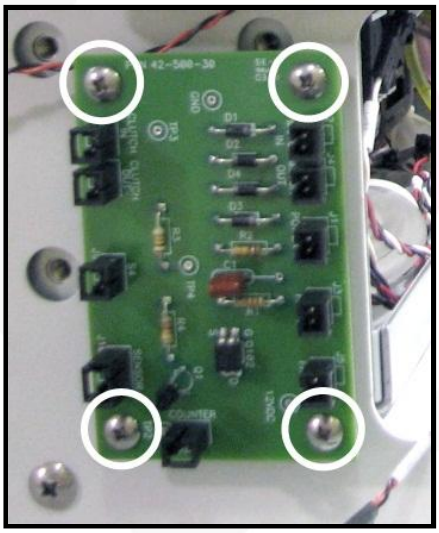
1. Remove the Right hand Side Cover.
2. Unplug the PC Board power cord **[1]** from the Power Inlet on the PC Board.
3. Unplug (9) Connectors for Clutch, Sensors, Motor, Encoder and Counter wires.
   NOTE: Wires are labeled for easy reconnection.



CAUTION

DO NOT DAMAGE THE WIRES WHEN REMOVING THEM.

4. Remove the (4) screws that attach the PC Board to the Side Frame and remove the PC Board.



CAUTION

MAKE SURE THAT YOU ARE PROPERLY GROUNDED BEFORE HANDLING THE PC BOARD. STATIC ELECTRICITY CAN DAMAGE THE BOARD.

5. **Reassemble in reverse order.**

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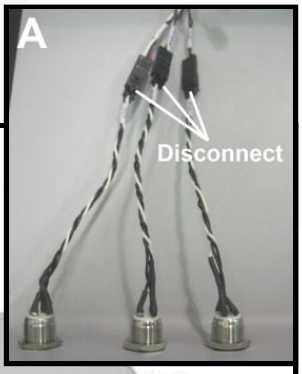
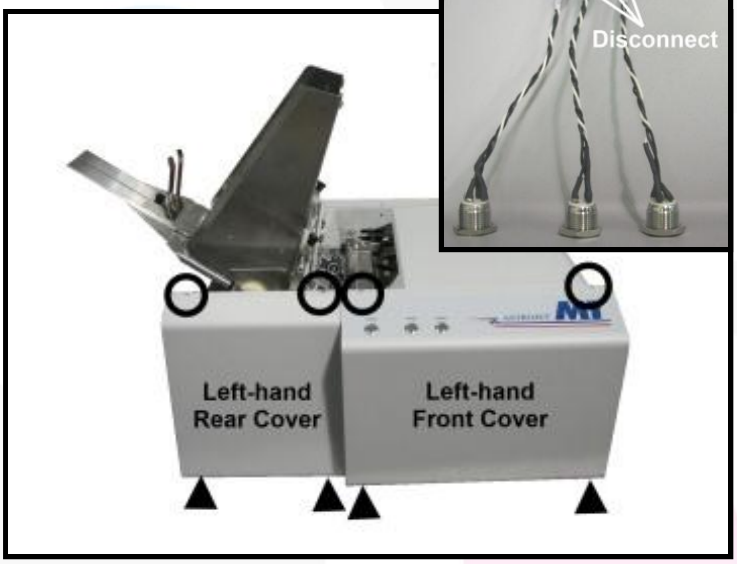
Removing the Print Engine

1. **Open the Top Cover.** Open the Toolbox, press the Release Printhead button. Printer will "deprime," pumping all the ink back to the Ink Tanks, then the Printhead Cover will open. Remove the Printhead Cartridge and carefully put it back in the original packaging. Shut the Printer down by first pressing the Control Panel Power button, then the Main Power switch on the Rear Panel. Unplug the unit.



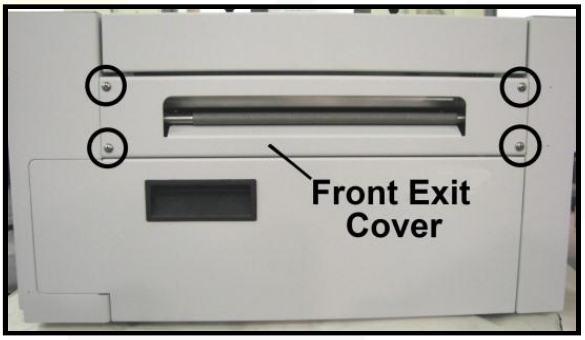
2. **Remove the Left hand Rear Side Cover** by removing the (2) screws at the top and bottom of the Cover.

3. Remove (2) screws at the top and bottom of the Left-hand Front Side Cover. Pull Cover away from machine slightly. **[A]** Disconnect the wires attached to the Power, Paper and Cancel Switches. Carefully remove the Cover. Then unclip wire bundle from clamp. **NOTE:** Wires are labeled to simplify reconnection.

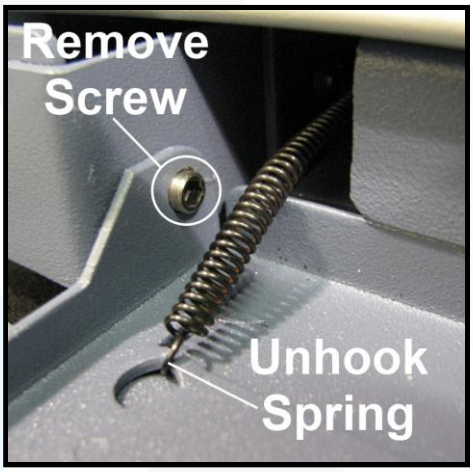


4. **Remove the Right-hand Side Cover** by removing the (3) screws at the top of the Cover. Then remove the (3) screws from the bottom of the Cover.

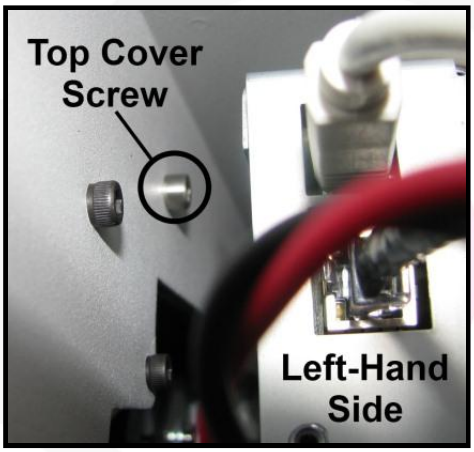
5. **Remove Front Exit Cover** by removing (4) screws.



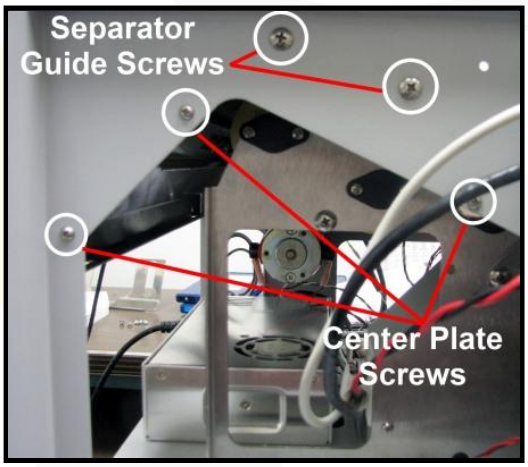
6. **Remove Ink Station Door.** Carefully unhook the (2) springs (*one each side*), then remove the mounting screw from the left-hand side (Control Panel Side). Remove Door and set aside.



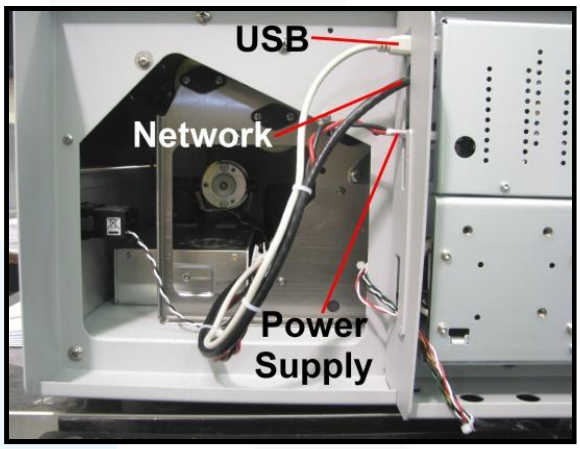
7. **Remove Top Cover.** Remove mounting screw from left-hand side (Control Panel Side). Remove Top Cover and set aside.



8. **[A]** Remove the (2) screws holding the left-hand side Media Separator Guide.
[B] Remove the (3) screws on left-hand side of the machine that hold the Center Plate in place.



9. Unplug USB, Network and Main Power connectors from Print Engine Circuit Board.

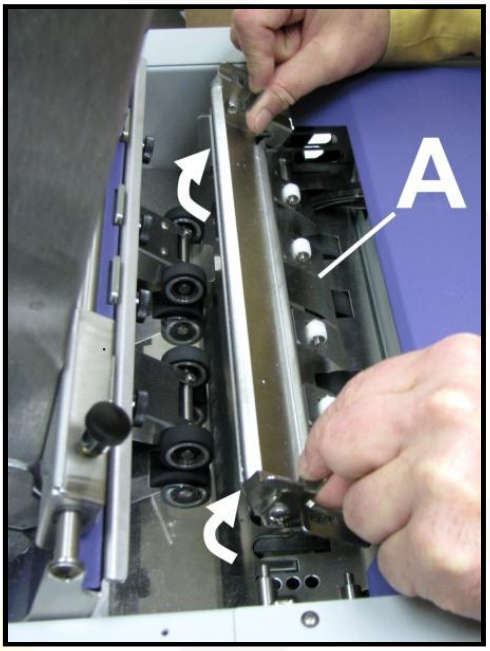


10. **Remove Antistatic Brush Assembly [A]** from mounting studs. Unlatch the two latches (*one on either side of the Assembly*) and lift the Assembly off the four mounting pins as shown. **Do not bend the brushes!**

CAUTION

DO NOT BEND, PINCH OR CUT THE INK LINES LOCATED DIRECTLY IN FRONT OF THE BRUSH ASSEMBLY.

NOTE: Make sure Brush Assembly is correctly reinstalled and aligned before starting to print. Assembly should sit flat on transport area surface.



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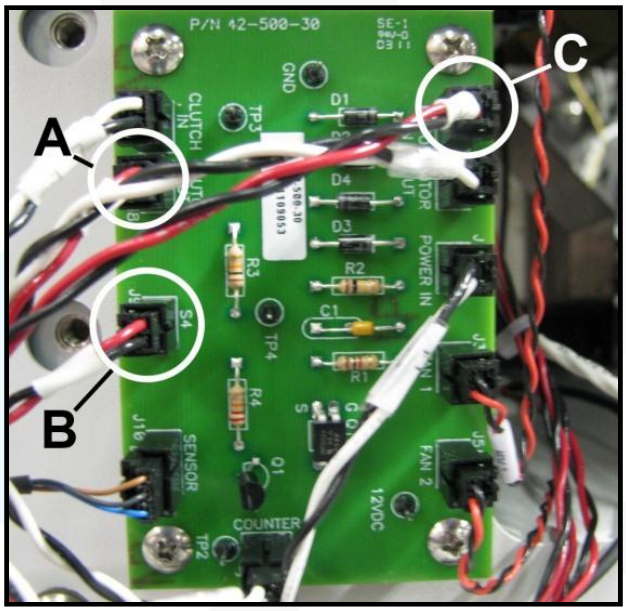
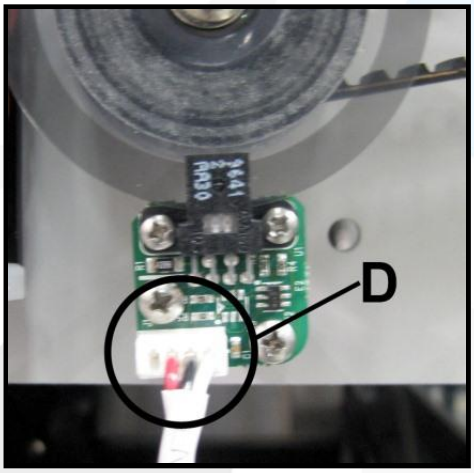
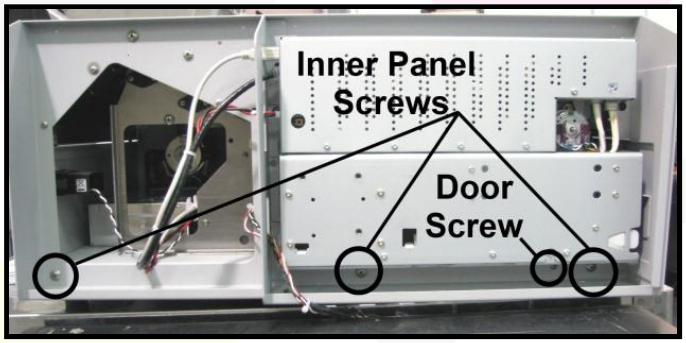
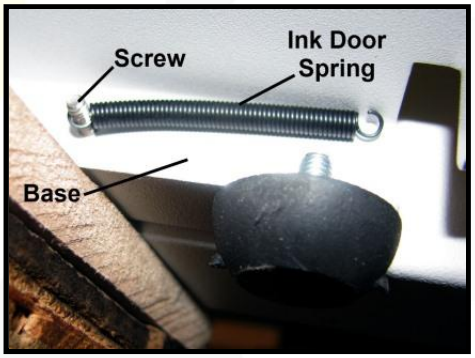
11. Disconnect the following wires from the Interface Printed Circuit Board located on the right hand side of the Printer Frame:
[A] Clutch Out (J8),
[B] S4 (J9)
[C] Motor In (J2)
[D] Disconnect the Encoder wire from the Encoder Printed Circuit Board. Pull these wires clear from the other wiring so they won't snag when the Print Engine is removed.





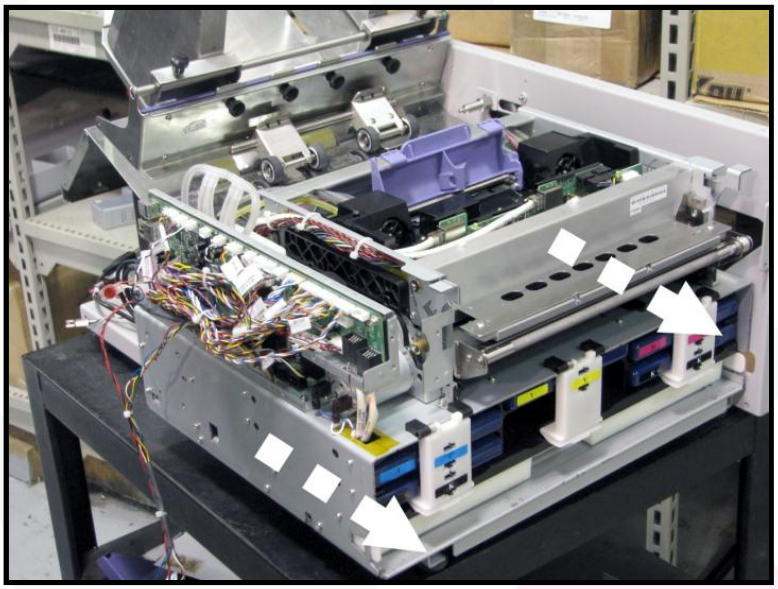
12. **Remove Left hand Inner Side Frame** (3 screws). Remove the Ink Tank Door Spring mounting screw. First remove the Door Spring attached to the screw under the Base Plate. Then remove the screw. Then carefully remove the Inner Side Frame from around the Print Engine and Ink Lines. **NOTE: Be careful not to lose the Ink Door Spring.**





13. Lift and support the Printer so you can reach underneath to access and remove the (4) screws holding the bottom of the Print Engine to the Base Plate.

14. Carefully slide Print Engine out of Printer. (Print Engine is entire unit including the Ink Station)



15. Reassemble in reverse order.

IMPORTANT!

WHEN REINSTALLING THE PRINT ENGINE, MAKE SURE THAT THE ALIGNING PINS ARE FLUSH WITH EACH OTHER WHEN THE PRINT ENGINE IS PUSHED AGAINST THE FRONT CENTER PLATE ASSEMBLY. EVEN A SLIGHT MISALIGNMENT MAY CAUSE FEEDING AND PRINTING PROBLEMS.

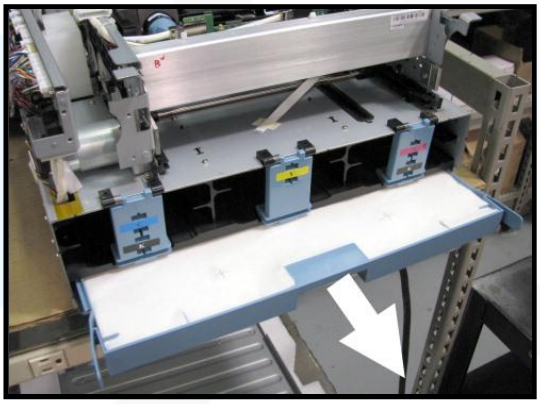
Print Engine Basic Disassembly

The Print Engine must be removed from the Printer for these procedures. See "Removing the Print Engine" in previous pages. It is also assumed that the Ink Tanks, Printhead and Service Station are removed.

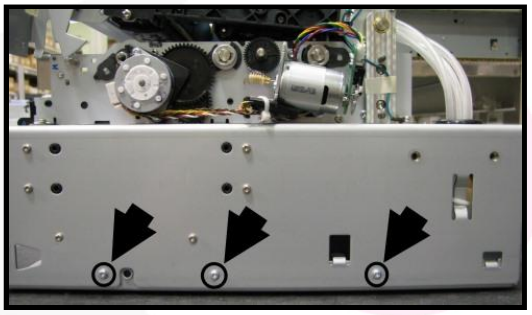
Removing the Print Engine Base

Provides access to parts located underneath the Print Engine.

1. **Remove Ink Waste Tray** from below Ink Reservoirs and put aside.



2. **Remove Engine Base.** Remove (6) T-10 screws, (*3 on each side*) of the Print Engine Assembly. **(Set aside for reassembly).**



Print Engine Components – Underside

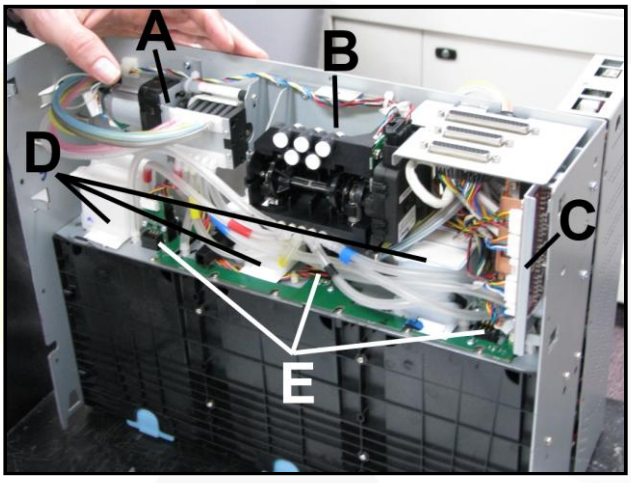
[A] Peristaltic Pump

[B] Dual Pinch Valve

[C] DPCA Board

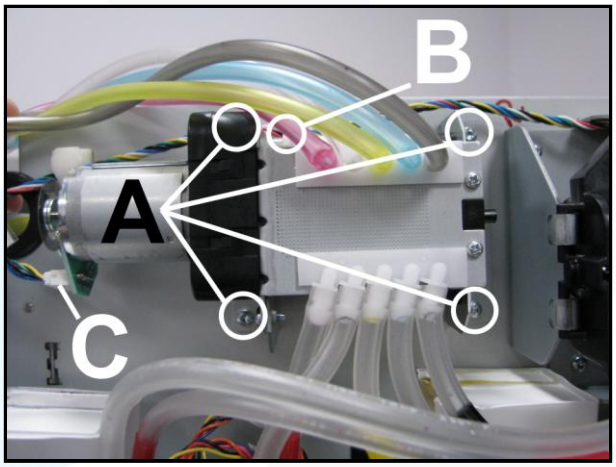
[D] Buffer Boxes (3 Sets of 2)

[E] Q/A Chip Assembly for Ink Tanks (3 – one per Buffer Box)



Replacing Peristaltic Pump Assembly

Remove old Pump Assembly:



[A] Remove (4) screws that hold Bracket to Chassis.

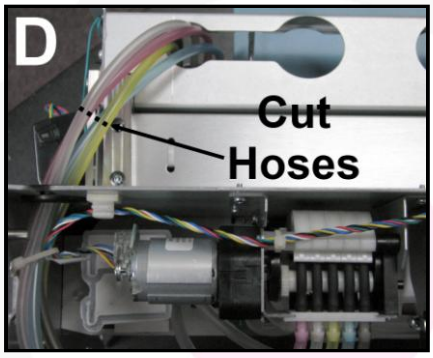
[B] Cut cable tie holding wiring harness to Assembly.

[C] Unplug connector from Pump Motor Circuit Board.

[D] Cut or remove Ink Hoses from barbs **IMPORTANT! Make sure you know where each Ink Hose connects**.

Remove old Pump Assembly.

Install new Pump Assembly:



Plug wire connector into new Pump Assembly Motor Circuit Board **[C]**.

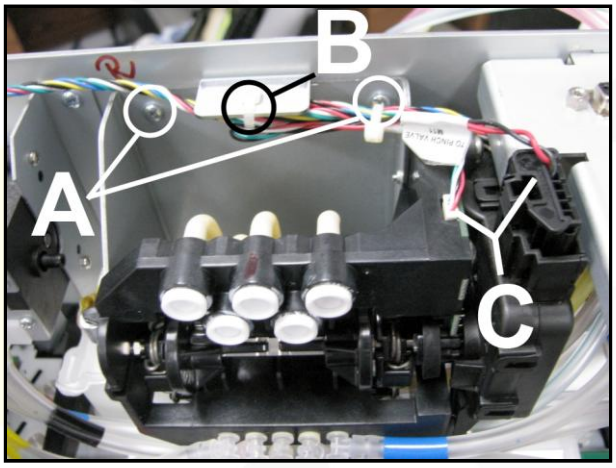
Attach to Chassis with (4) screws **[A]**.

Cable tie wire harness to assembly as shown in Step 1 **[B].**

Attach Ink Hoses in order shown to hose splice connectors (*included with kit*) **[D].**
IMPORTANT! Make sure you know where each Ink Hose connects for reassembly.

Replacing Dual Pinch Valve Assembly

Remove old Valve Assembly:



[A] Remove (4) screws that hold Bracket to Chassis.

[B] Cut cable tie holding wiring harness to top flange on Bracket Assembly.

[C] Unplug the (2) connectors from the Valve Assembly.

[D] Disconnect Ink Hoses. **IMPORTANT! Make sure you know where each Ink Hose connects**.

Remove old Pinch Valve Assembly.

Install new Pinch Valve Assembly:

Plug wire connectors into new Pinch Valve Assembly **[C]**.

Attach to Chassis with (4) screws **[A]**.

Cable tie wire harness to top flange on Pinch Valve Assembly as shown in Step 1 **[B]**.

Attach Ink Hoses in order shown to hose splice connectors (*included with kit*) **[D]**.

Replacing DPCA Board

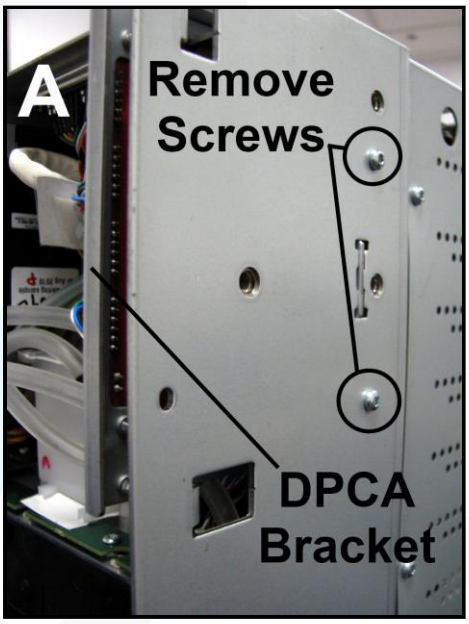
[A] Remove (2) screws on the outside of the Chassis that attach the Circuit Board Bracket to Chassis.

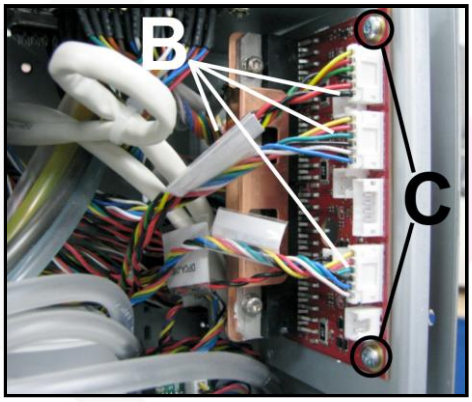
[B] Carefully move the DPCA Assembly out to unplug the wire harness connectors. **NOTE:** Make sure you know which connectors go with which socket.

[C] Remove the (3) screws attaching the DPCA to the Bracket.

Remove DPCA Board.

Install in reverse order.

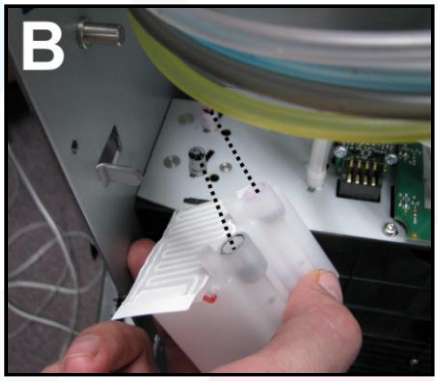




Replacing Buffer Boxes (3 per machine))

[A] Each Buffer Box is held in place by (2) screws accessed through the Ink Tank Station. Using a long Phillips screwdriver, remove the screws and pull up on the Box to remove it from the Chassis.

[B] Push new Buffer Box down onto the ink ports. Attach with (2) screws from inside Ink Tank Station.

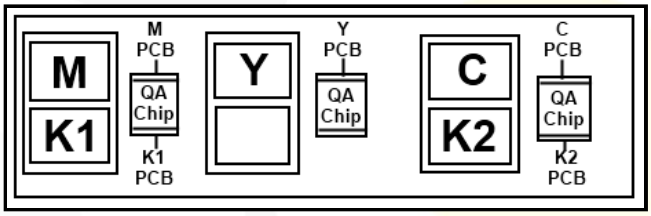


Replacing QA Chip Assembly (3 per machine))

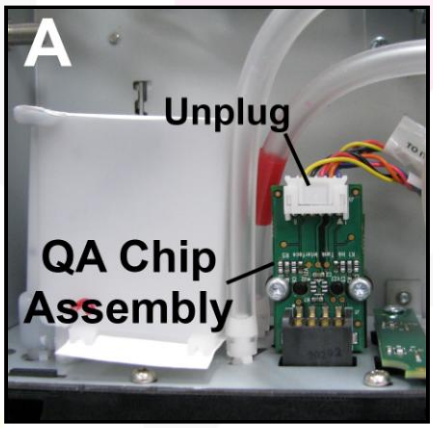
[A] Each QA Chip Assembly is held in place by (1) screw accessed through center of the Chip Assembly. Unplug wire harness from Printed Circuit Boards.

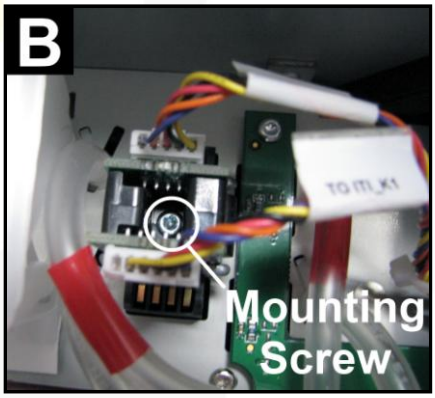
[B] Remove the mounting screw.

Install in reverse order. NOTE: Make sure wire harnesses are plugged into correct Printed Circuit Board.



Buffer Boxes and QA Chip Assemblies

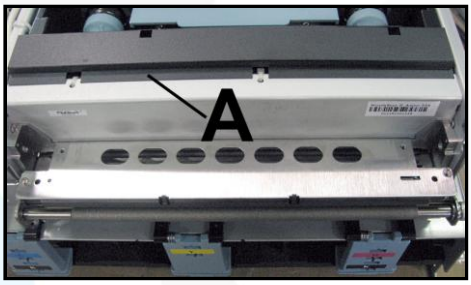




Removing the Pen Driver Printed Circuit Assembly (PCA))

Location: Upper Clamshell next to the Printhead Cartridge bay.

[A] Remove the Pen Driver PCA Cover (lightly glued in place).



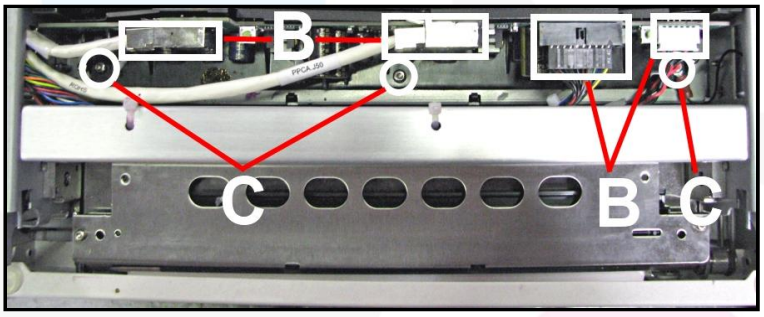
[B] Disconnect the (2) Ethernet data cables, then unplug the power connector and Main PCA harness connectors.

[C] Remove (3) screws holding the Head Board Mount.

[D] Remove the Pen PCA from the unit.

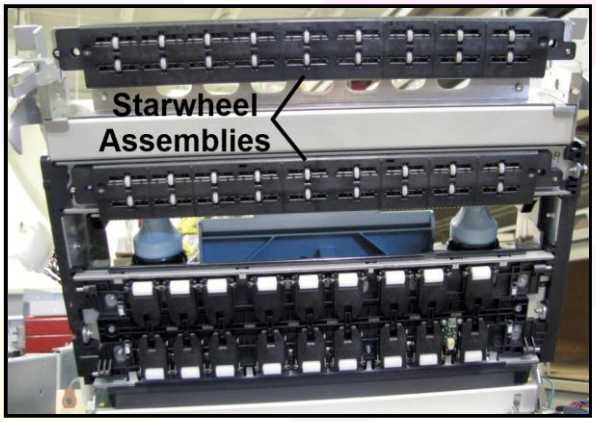
[E] Remove (2) screws attaching the PCA to the Head Board Mount.

Install in reverse order.



Removing the Starwheel Assemblies

Location: Upper Clamshell. Open the Print Engine Clamshell to access the two Starwheel Assemblies. One is just inside the exit end of the Clamshell, the other one is mounted externally on the Clamshell Frame over the Exit Center Plate Assembly. The removal procedure is similar.

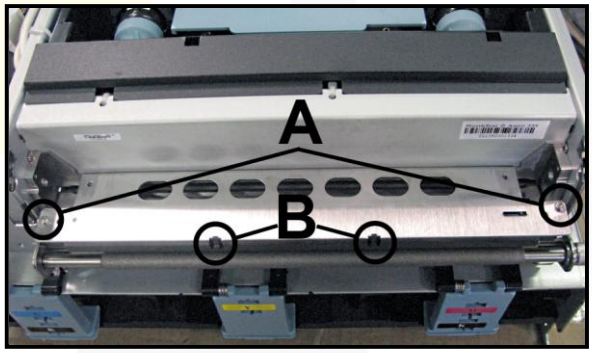


External:

[A] Remove (2) screws from top of Exit Wheel Bracket.

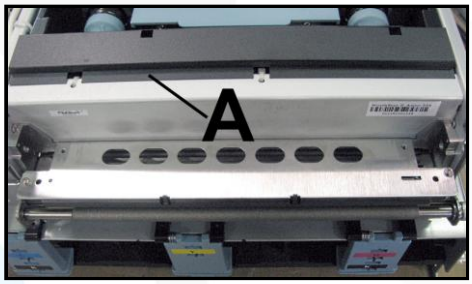
[B] Carefully release the locking tabs holding the Starwheel Assembly to the Clamshell. **NOTE: Locking tabs break easily!** Remove the Starwheel Assembly.

Install in reverse order.



Internal:

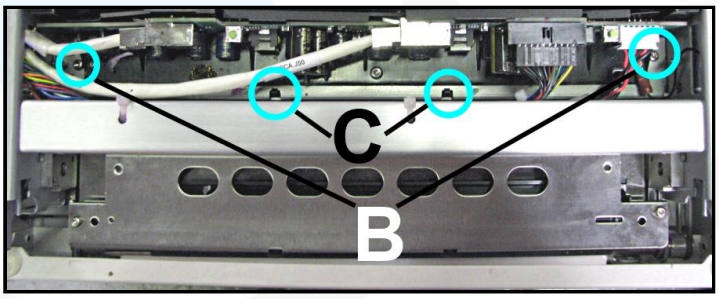
[A] Remove the Pen Driver Printed Circuit Board Cover.



[B] Remove (2) screws from bottom of Pen Driver Printed Circuit Board bay.

[C] Locate and carefully release the (2) black locking tabs holding the Starwheel Assembly to the metal bracket. **NOTE: Locking tabs break easily!** Remove the Starwheel Assembly.

Install in reverse order.



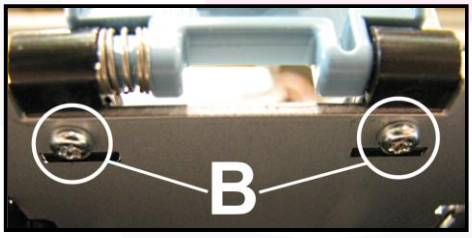
Replacing the Ink Tank Latches

Ink Tanks must be removed prior to replacing latches. See “Replacing Ink Tanks” in the Maintenance Section. Printer must be flat on a level surface.

[A] Lift the latch.

[B] Remove (2) screws located on underside of the latch hinge block. (May require a mirror to find the screw heads.) Remove the Latch Assembly.

CAUTION: Latches are spring-loaded, **watch that springs don't fly off.**

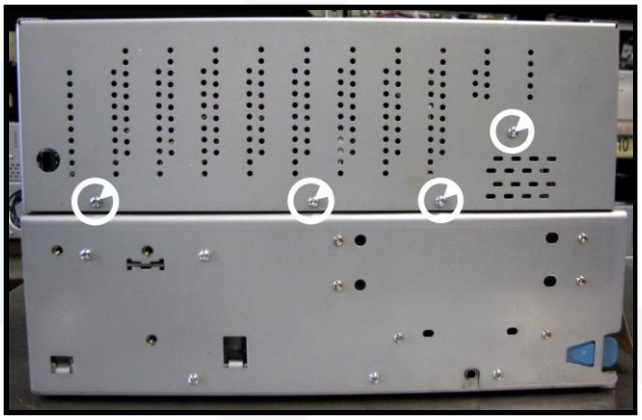


Main Printed Circuit Assembly (MPCA) Cover

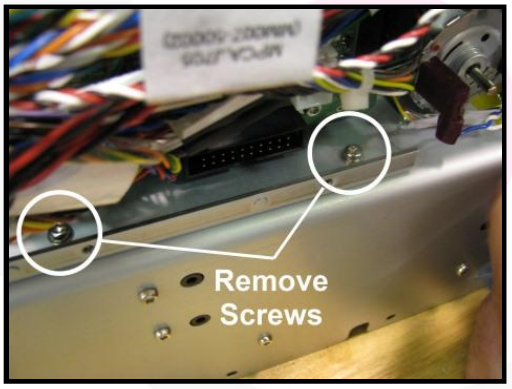
Removing the Main Printed Circuit Assembly (MPCA) Cover

To get access to parts on the Print Engine clamshell, the MPCA Panel Cover must be removed and the panel folded out of the way.

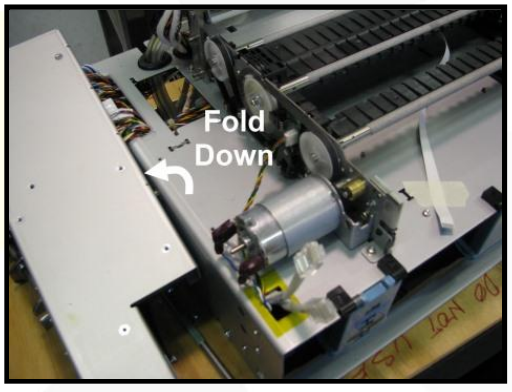
1. Remove (4) screws to remove the Cover. Set aside. **NOTE: End Panel screws intentionally left off to improve accessibility.**



2. **Remove two (2) mounting screws from bottom of MPCA Panel.**



3. **Fold Main Printed Circuit Assembly down out of the way. NOTE: Be Careful! DO NOT pull, pinch or strain wiring.**



Replacing Encoder or Encoder Sensor

[A] Remove (3) screws holding the Encoder Cover.

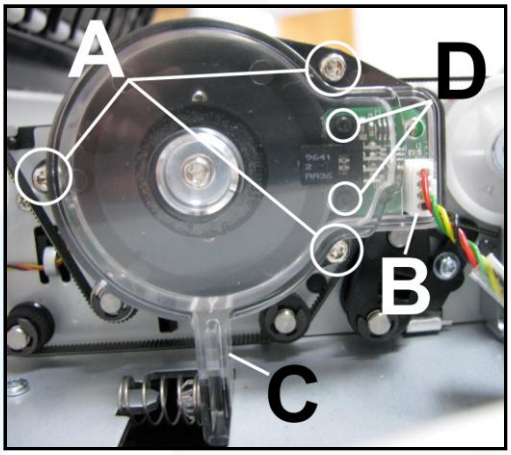
[B] Unplug wire harness from the Encoder Sensor.

[C] Carefully pivot the Cover away from the Encoder Wheel. Be careful of the spring.

[D] Remove the (2) screws holding the Encoder Sensor in place and pull away from Encoder Wheel. **NOTE: Be careful not to damage the Wheel.**

[E] Remove the single screw holding the Encoder Wheel to the Roller Shaft. Remove the Encoder Wheel Assembly. **NOTE:** Be careful of the tension spring and washers located on the shaft behind the Encoder Assembly.

Install in reverse order.

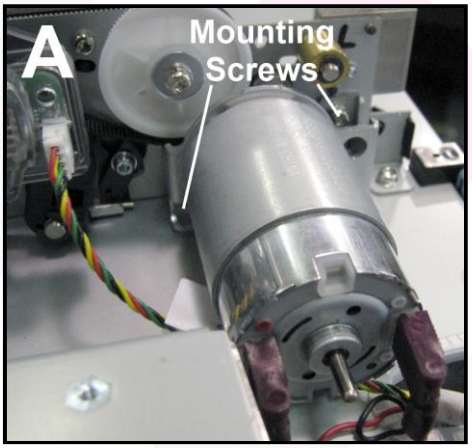


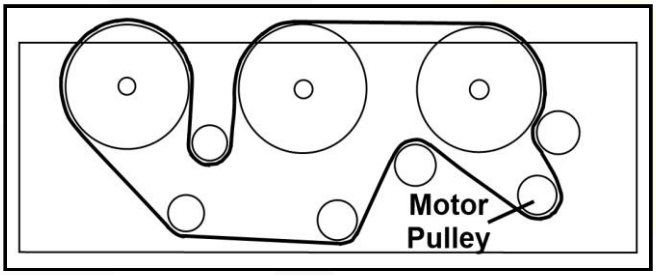
Replacing Paper Path Motor or Drive Belt

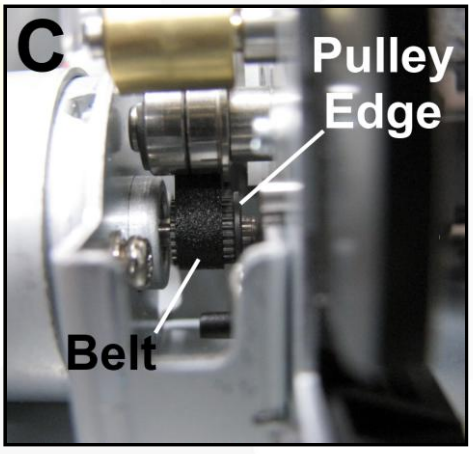
[A] Remove (2) screws that attach the Motor Assembly to the lower Print Engine Clamshell. Pull the Motor straight out so the Motor Pulley clears the Drive Belt. **NOTE: If removing Motor, unplug the two wire connectors.**

[B] If removing the Drive Belt, remove the Encoder Assembly (see "Replacing Encoder or Encoder Sensor"). Remove the Drive Belt.

[C] Install the Drive Belt and/or Motor in reverse order. **NOTE:** Make sure that the Belt stays inside the raised edges of the Motor Pulley and Roller Studs.







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Replacing Belt Drive Gear Pulleys

There are three. One is mounted on the Exit Grit Roller Shaft, one is located behind the Encoder Assembly on another Grit Roller Shaft and one is mounted on the Entry Grit Roller Shaft. First, you may need to loosen or remove the Drive Belt, see **"Replacing the Paper Path Motor or Drive Belt"**.

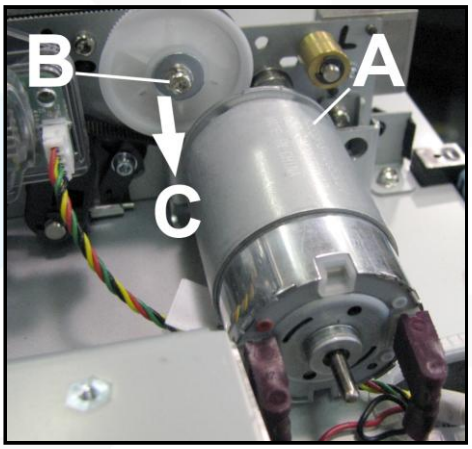
Exit Grit Roller Gear Pulley

[A] Remove the Paper Path Motor. See **"Removing Paper Path Motor"**.

[B] Remove the screw, washer, C-clip and plastic washer from end of Exit Grit Roller Shaft. (Note order for reassembly.)

[C] Remove Pulley from shaft.

Install in reverse order. **NOTE:** Align slot on Pulley with pin in shaft before installing.



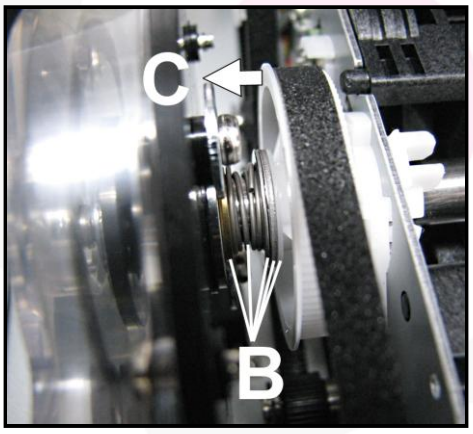
Encoder Grit Roller Gear Pulley

[A] Disconnect and remove the Encoder Assembly. See **"Removing Encoder and Sensor Assembly"**.

[B] Remove the washer, tension spring, thin washer, washer and plastic washer from end of Grit Roller Shaft. (Note order for reassembly.)

[C] Remove Pulley from shaft.

Install in reverse order. **NOTE:** Align slot on Pulley with pin in shaft before installing.

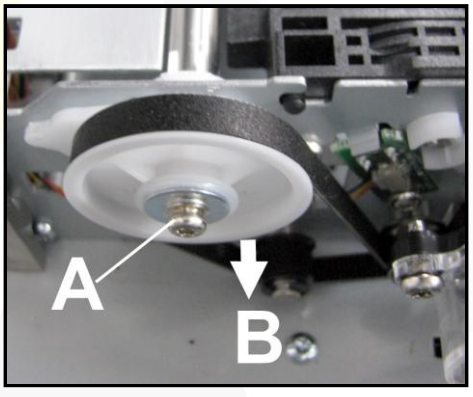


Entry Grit Roller Gear Pulley

[A] Remove the screw, washer, C-clip and plastic washer from end of Grit Roller Shaft. (Note order for reassembly.)

[B] Remove Pulley from shaft.

Install in reverse order. **NOTE:** Align slot on Pulley with pin in shaft before installing.



Replacing Lifter Motor Assembly or Lifter Gear

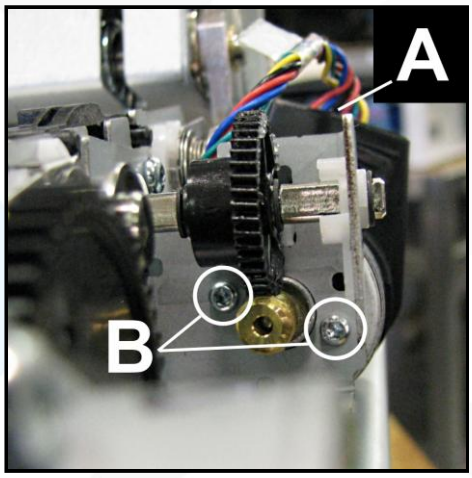
Remove Lifter Motor Assembly Only:

[A] Unplug the wire harness from the Lifter Motor Assembly.

[B] Remove the (2) screws holding the Motor Assembly to the Motor Assembly Bracket.

[C] Gently remove the Motor Assembly. Take care that the Worm Gear does not damage the Lifter Gear.

Install in reverse order. **NOTE:** Make sure Worm Gear and Lifter Gear are engaged correctly. Apply a small amount of gear lube to Lifter Gear.



Remove Lifter Motor Assembly and Lifter Gear

[A] Remove (2) screws holding Lifter Motor Assembly Bracket.

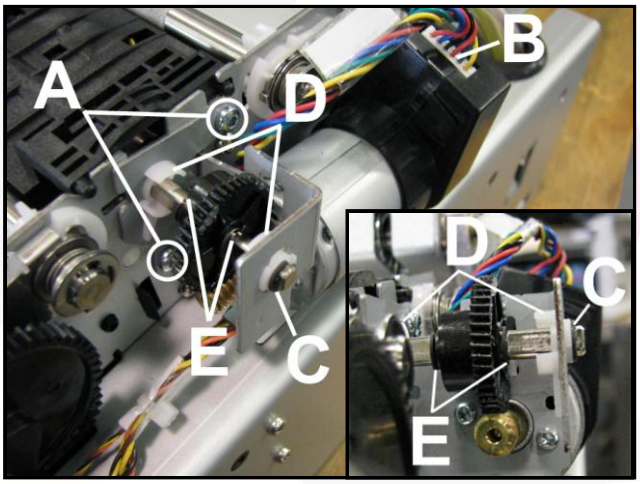
[B] Unplug the wire harness from the Lifter Motor.

[C] Remove the C-clip located on the end of the shaft.

[D] Unpin pegs and turn the (2) plastic bayonet bearings to release the Motor Bracket.

[E] Remove the (2) C-clips (one on either side) of the Lifter Gear.

[F] Slide Lifter Motor Assembly and Lifter Gear off of shaft.



Install in reverse order. **NOTE:** Make sure Worm Gear and Lifter Gear are engaged correctly. Apply a small amount of gear lube to Lifter Gear.

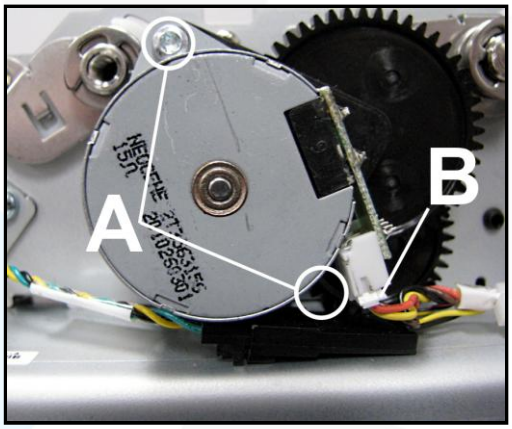
Replacing Stepper Motor

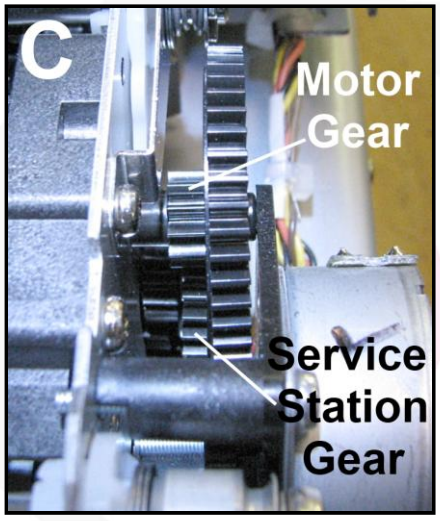
[A] Remove (2) screws.

[B] Unplug the wire harness from the Stepper Motor Printed Circuit Board.

[C] Note the position of the Motor gears to make sure gears will mesh with the Service Station gear (if Service Station is installed.)

Install in reverse order.





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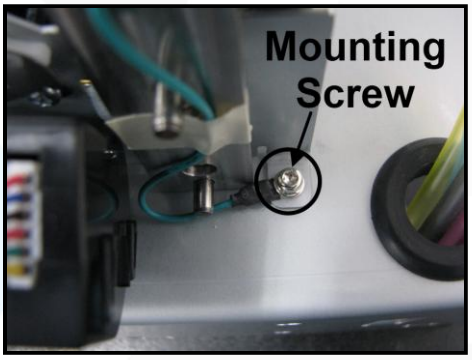
Removing the Clamshell Assembly

Provides access to parts under the Clamshell Assembly.

Removing Clamshell Assembly

1. Remove the (4) screws attaching the Clamshell to the Chassis (*1 at each corner*).
2. Gently lift the Clamshell from the Chassis – **Take care not to pinch or damage any wires or ink hoses.**

NOTE: Remember to reinstall the ground cable when reattaching Clamshell Assembly to Chassis. Check that no wires or hoses are being snagged or pinched.



Clamshell Assembly Components -- Underside

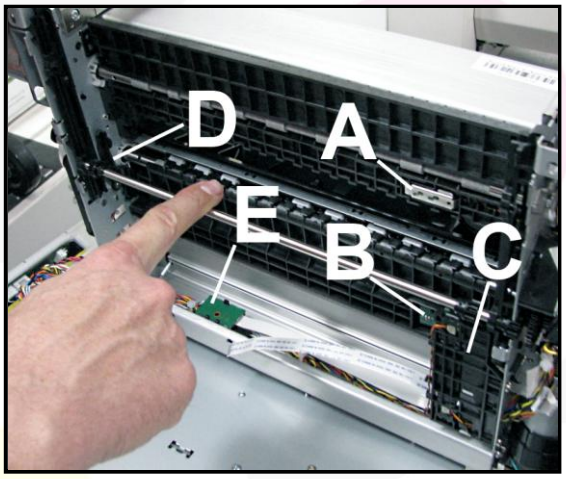
[A] Exit Sensor

[B] Label Web Sensor Emitter

[C] Service Station PCA Sled

[D] Wiper Lifter Arms (Left & Right)

[E] Wiper Motor PCA and Flex Cable



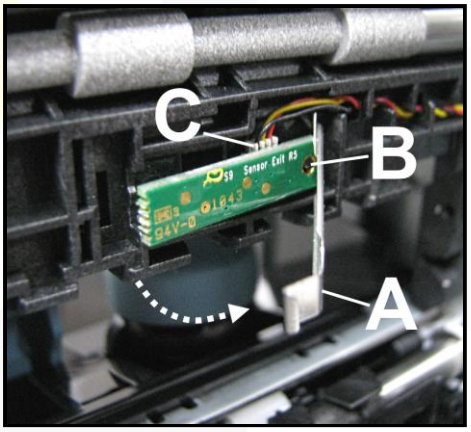
Replacing Exit Sensor

[A] Unlatch Exit Sensor Cover.

[B] Carefully pull Entry Sensor off locating pin.

[C] Turn Sensor over and unplug wiring harness.

Install in reverse order.



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Replacing Label Web Sensor

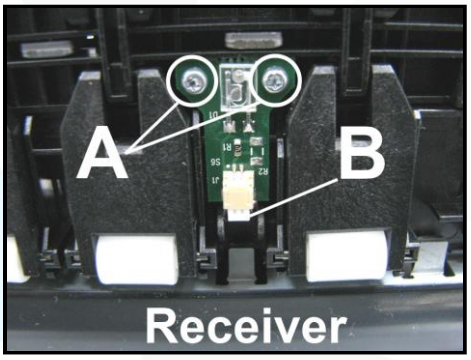
The Label Web Sensor consists of a Receiver located in the upper Clamshell and an Emitter located in the lower Clamshell.

Receiver (Under Upper Clamshell):

[A] Remove (2) screws.

[B] Disconnect wiring harness.

Install in reverse order.



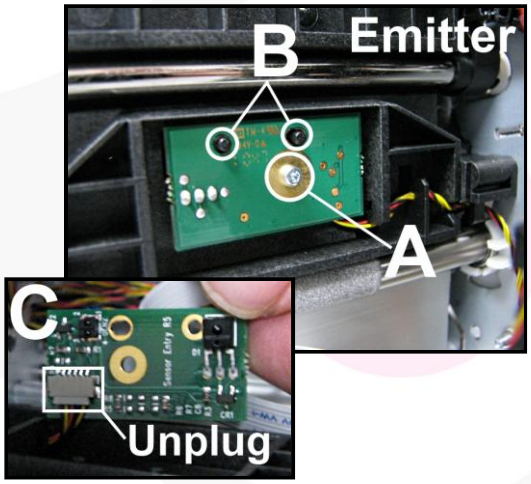
Emitter (Under Lower Clamshell):

[A] Remove (1) screw.

[B] Carefully pull Emitter off locating pins.

[C] Turn Emitter over and unplug wiring harness.

Install in reverse order.



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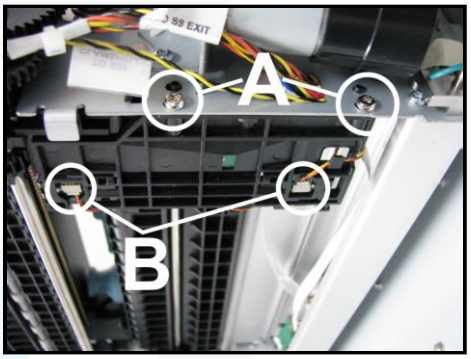
Replacing Service Station Sled Printed Circuit Boards

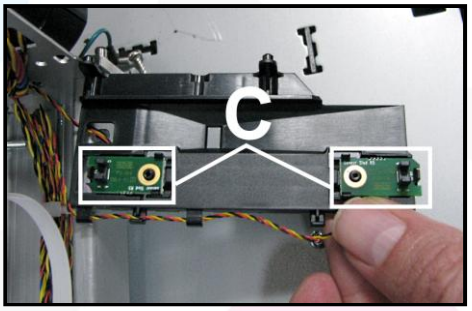
[A] Remove (2) screws.

[B]. Carefully disconnect the (2) connectors.

[C] Swing Sled away from Clamshell and turn over. Carefully unclip the two Printed Circuit Boards.

Install reverse order. **NOTE:** Make sure wire harnesses are plugged into correct printed circuit board.





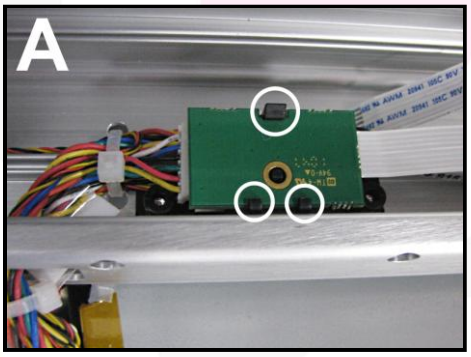
Replacing Wiper Motor Flex Cable PCA

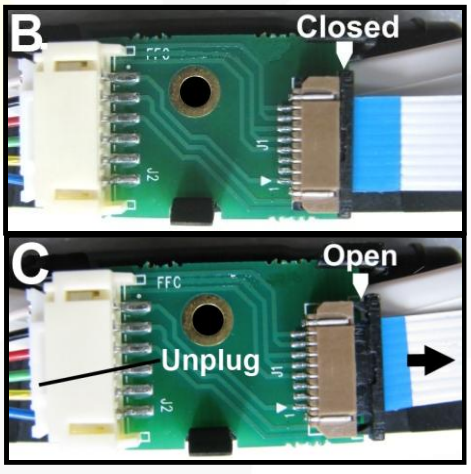
[A] Carefully unclip the Printed Circuit Board from the Holder and turn it over. **NOTE: Tabs break easily.**

[B] Disconnect the Ribbon Cable. Slide the Latch open on the Circuit Board to release the Ribbon Cable.

[C] Disconnect the Wiring Harness.

Install in reverse order. **NOTE:** Make sure Ribbon Cable and wiring harness are plugged in correctly.





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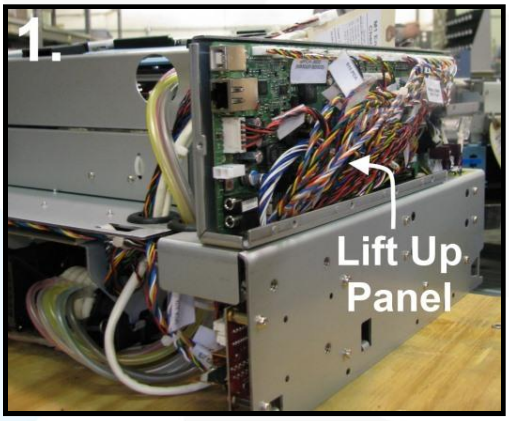
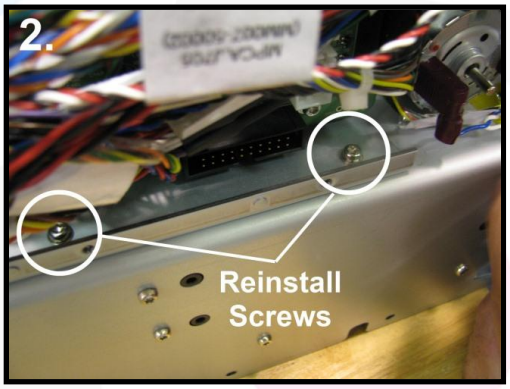
Reinstall Main Printed Circuit Board Assembly

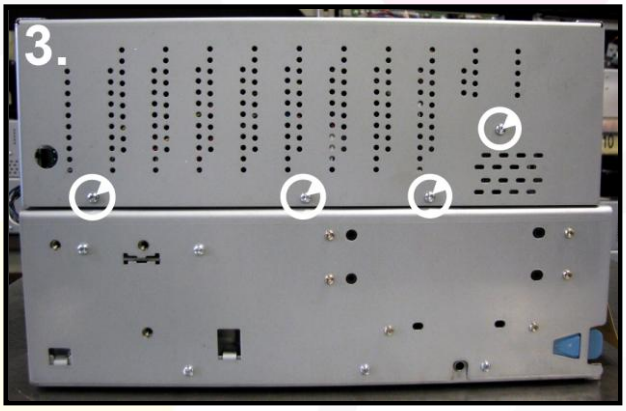
1. Gently lift up the Wiring Panel.
   NOTE: DO NOT pinch or cut wires running through Frame.



2. Reinstall the two (2) mounting screws into bottom of MPCA Panel.



3. Reinstall (4) screws to attach the Cover.



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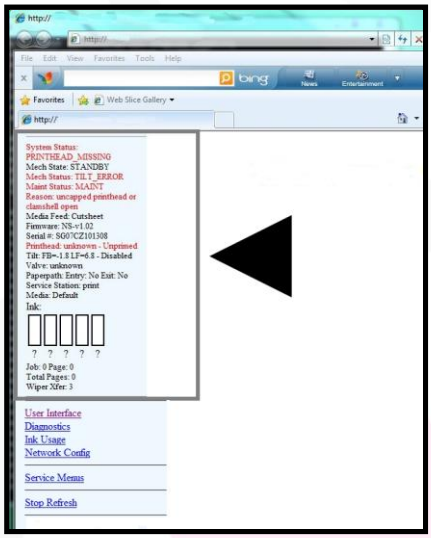
SECTION 6 - *Maintenance*

This section covers how to care for the Ink Tanks, Printhead Cartridge, Service Station, clear paper jams, and replace the Sheet Separators.

Replacing the Ink Tanks

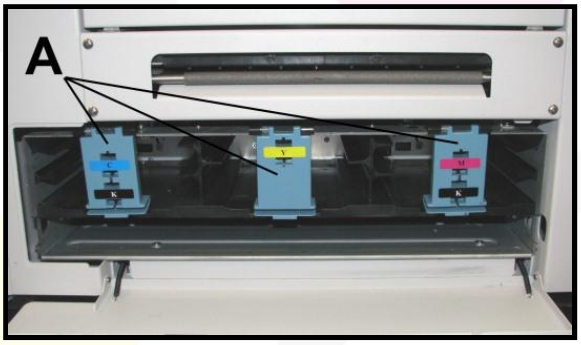
Replace the Colordyne 1600-S Ink Tanks when the ink runs out.

1. **Open the Toolbox.** Go to All Programs, open the Printer Folder and open the Toolbox. On the opening screen you will see System Status information in the upper left corner.

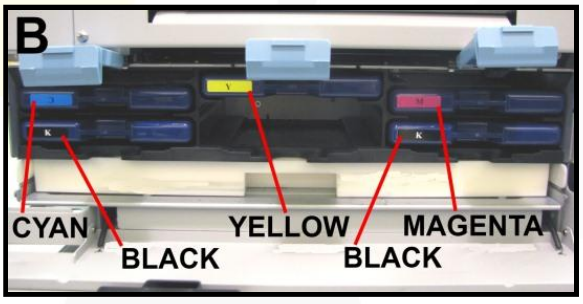


2. Open the Front Cover (*hinged at bottom*). Open the three Latches **[A]** and pull the Tank(s) from the unit.

3. Remove the new Tank(s) from packaging.



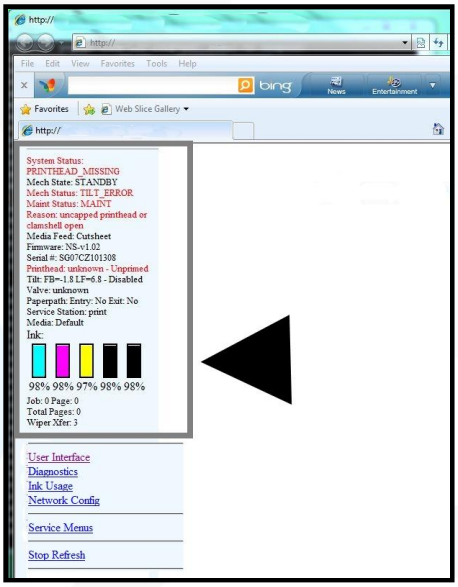
4. Slide the new Tank (*label up*) into its appropriate color slot **[B]**.
INSTALLATION TIP: Make sure the Tanks seat properly. Insert the Tank into the appropriate Ink Station, then pull the Tank back about an inch and push forward firmly to insure that the Ink Nozzles penetrate the seals on the Ink Tanks.



5. Turn Printer ON with the Control Panel Power Button. Watch the Toolbox screen on your computer, you will see the ink colors fill in as the Tanks are installed. If the ink color does not fill in after a few seconds, reinstall the Tank.

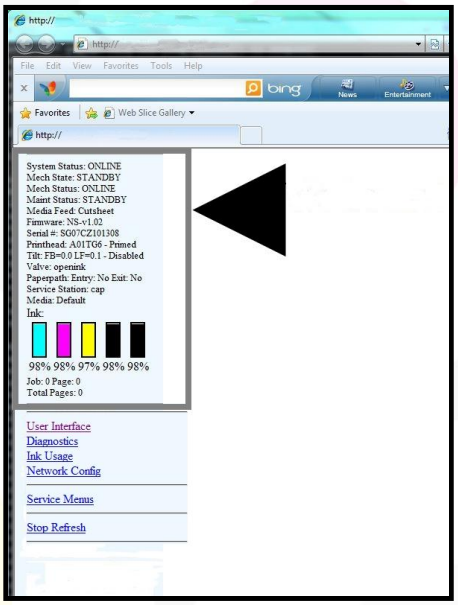
6. Prime the system by running the Circulate Ink routine from the User Interface window in the Toolbox.

7. Watch the Toolbox screen on your computer again. Notice that some of the information is in red. As the Printer circulates ink and primes the system these fields should all turn black.



8. When the Printer stops processing and all the fields in System Status are black, the Printer is ready for use.

9. Latch the three Latches. Close the Front Cover.



WARNING

The ink in the Ink Tanks may be harmful if swallowed. Keep new and used Tanks out of reach of children. Discard empty Ink Tanks immediately.

Storage

New Ink Tanks should be stored in their original packaging and kept away from heat.

Opened Ink Tanks should remain in the Printer.

Disposal

The Ink Tanks may be disposed of in a normal manner.

Clean up spills with soap and water. Abrasive soap is effective in cleaning ink off your hands.

Cleaning/Replacing the Printhead Cartridge

Cleaning

The Printhead Cartridge in the Colordyne 1600-S Printer is cleaned automatically each time the machine is turned on or when the Level 1 Maintenance routine is performed by the operator. This can be found under the Service Tab, Level 1 Maintenance in the Printer Driver. Level 2 and Level 3 Maintenance can be used to more thoroughly clean or clear the Printhead.

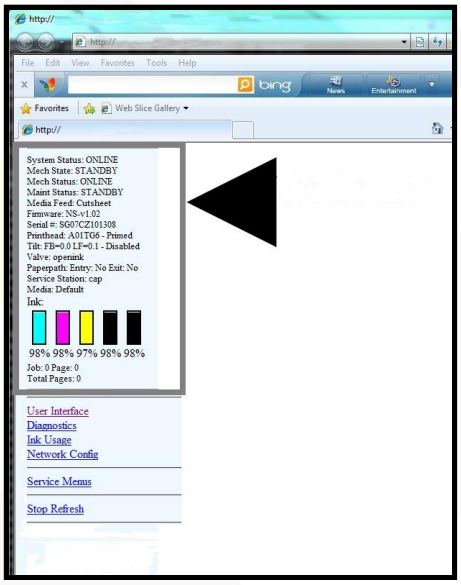
If running the Maintenance Levels doesn't help improve print quality, the Printhead Cartridge can be cleaned manually. Open the Top Cover. Release and lift up the two latches (*one on each side of the Printhead Assembly*) **at the same time** to raise the Printhead Assembly. **Moisten the Printhead nozzles using distilled water or deionized water (reference ASTM D5127-90 Type E-II Electronic Grade Water) with a wet, lint-free cloth. Take care not to damage the copper contacts, the metal plate, or the gold Printhead surface. Close and relatch the Printhead Assembly.** Generally, when the ink supply is adequate and the print quality remains poor, or when the built-in cleaning processes or manually cleaning the Printhead has not helped the image quality, the Printhead should be replaced.

CAUTION

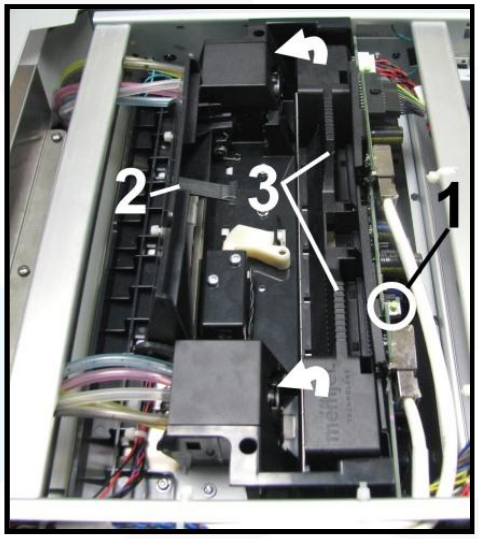
- **Use electro-static discharge protection when handling.**
- **Hold the Printhead Cartridge by the handles ONLY.**
- **DO NOT touch the ink couplings, nozzle surface or electrical contacts.**
- **DO NOT unpack the Printhead Cartridge until the Printer is ready for installation. Once unwrapped, delay in installing the Printhead can compromise print quality due to dehydration.**
- **DO NOT place an unwrapped Printhead on any surface before installing. Protect the Printhead from dust, fibers, dirt and other contaminants at all times.**

Replacing the Printhead Cartridge

1. **Open the Toolbox.** Go to All Programs, open the Printer Folder and open the Toolbox. On the opening screen you will see System Status information in the upper left corner.



2. **Open the Top Cover.** Press the Printhead Cover Release Button **[1]**. The Printer pumps any ink in the system back into the Ink Tanks. Then the Printhead Cover pops open **[2]**.
NOTE: You can perform this same function from your computer by clicking Printhead Release from the Services tab in Print Properties or the User Interface screen in the Toolbox.

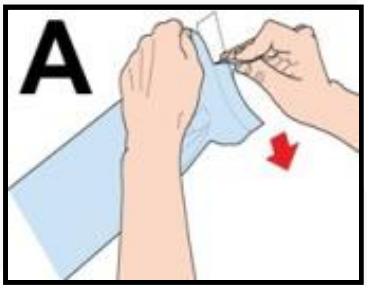


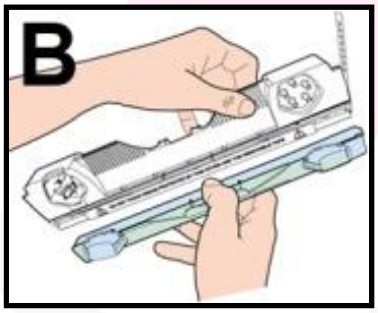
CAUTION

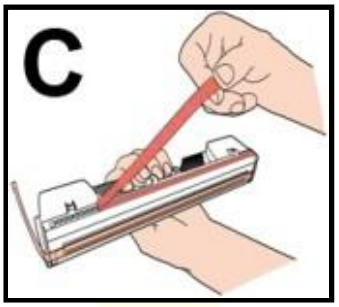
DO NOT PRY OR MANUALLY LIFT THE PRINTHEAD COVER OR THE COVER MAY BREAK. ONLY OPEN THE COVER USING THE RELEASE BUTTONS ON THE PRINTER OR THE PRINTHEAD RELEASE COMMANDS IN THE SERVICES TAB OR M SERIES TOOLBOX.

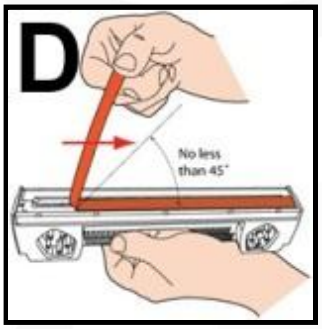
3. Make sure the Printhead Cover is fully opened to retract the ink lines. Remove the used Printhead Cartridge by tilting it toward the ink lines **[3]**, then carefully lift it out of the Printhead Compartment.

4. **Carefully remove the Printhead Cartridge from the foil packaging**. [**A] Tear at notch or cut end with scissors.**
[B] Remove the protective plastic cover. Hold the Printhead by the handle and unclip the cover from the Printhead.
[C] Remove protective strip from the Printhead electrical contacts. **DO NOT allow removed strip to touch the electrical contacts.**
[D] Remove protective strip from the Printhead Nozzles. Hold the Printhead by the handle with one hand. Pull the strip tab with the other hand and slowly peel the strip from the Printhead**. DO NOT pull the strip at any angle less than 45° with the Printhead surface. DO NOT allow removed strip to touch the Printhead Nozzles.**
NOTE: Keep foil packaging to store/dispose of old Printhead Cartridge.







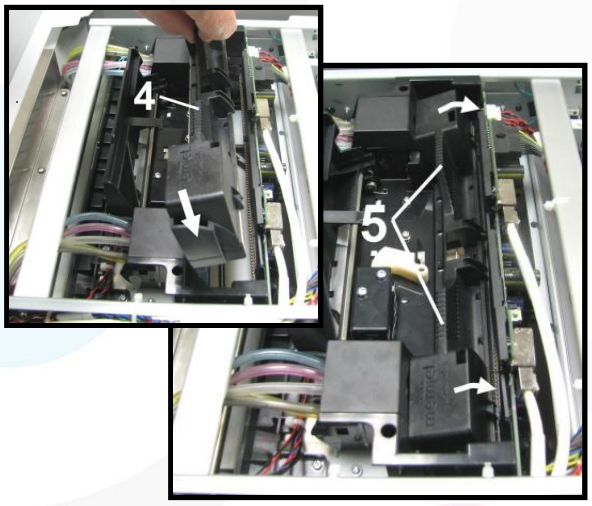


IMPORTANT! Pour distilled water into the orange plastic cover you removed in Step 4B and carefully reinstall the Printhead back into the plastic cover. Set the Printhead aside for 15 to 20 minutes. This rehydrates Printhead and allows easier priming once it is installed in the Printer. .

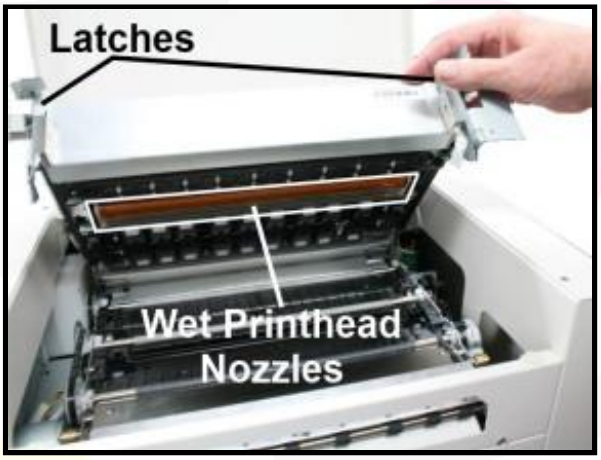
WARNING

To avoid electrical shock or shorting:
Before installing the Printhead, make sure the nozzles are hydrated and the contacts are DRY!

4. Carefully insert the Cartridge into the compartment at an angle **[4]**, with the Printhead surface facing down and the Ink Nozzles facing the Ink Hoses. Once it is seated, gently tilt the Cartridge back until it snaps into an upright position **[5]**. **DO NOT FORCE the Printhead Cartridge into position.**



5. **Wet the Printhead Surface. This ensures that the Printhead will prime correctly.** Open the Top Cover. Release and lift up the two latches (*one on each side of the Printhead Assembly*) **at the same time** to raise the Printhead Assembly. **Moisten the Printhead nozzles using distilled water and a wet, lint-free cloth. Close and relatch the Printhead Assembly.**



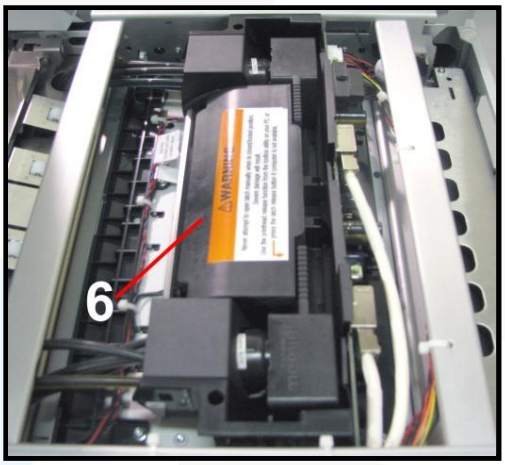
CAUTION

OPERATE AND HOLD ONTO BOTH LATCHES WHEN OPENING AND CLOSING THE PRINTHEAD ASSEMBLY TO PREVENT DAMAGE.

DO NOT ALLOW THE ASSEMBLY TO DROP BY ITSELF WHEN CLOSING.

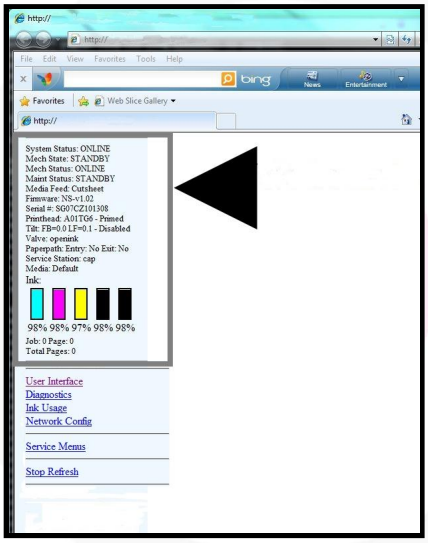
TO PREVENT DAMAGE TO THE INK LINES, A STOP LIMITS RAISING THE ASSEMBLY MORE THAN 60°.

6. Close the Printhead Cover **[6]**. The Printer will automatically run a start-up routine and prime the ink into the Printhead. This may take a few minutes. Make sure that ink is flowing through the hoses. If air bubbles appear you may have to tap the lines or run the Circulate Ink routine to clear them.



7. Watch the Toolbox screen on your computer again. Notice that some of the information is in red. As the Printer circulates ink and primes the system these fields should all turn black.

8. When the Printer stops processing and all the fields in System Status are black, the Printer is ready for use. Close the Top Cover.



IMPORTANT

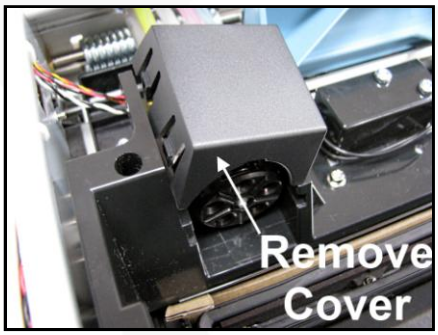
CHECK INK TANKS. PRINTER MAY NOT FULLY REPRIME IF TANKS ARE LESS THAN 1/3 FULL.

NOTE: The Printer may take up to 12 minutes to set itself up during initial startup. This is normal. The machine will emit a number of chirps, whirrs and other noises as it circulates ink and runs procedures.

Replacing the Ink Revolvers

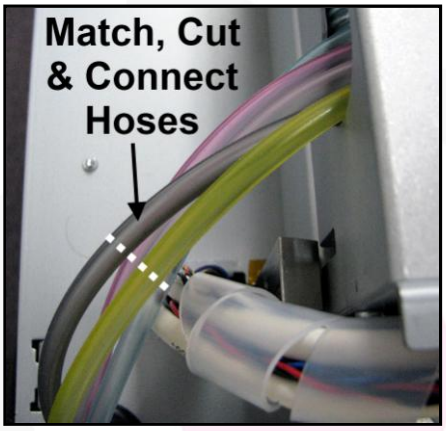
First Deprime the system and remove the Printhead Cartridge. New Ink Revolver includes attached leader hoses and hose connectors.

1. Remove Cover by squeezing sides to release the tabs. Lift out Cover and set aside.

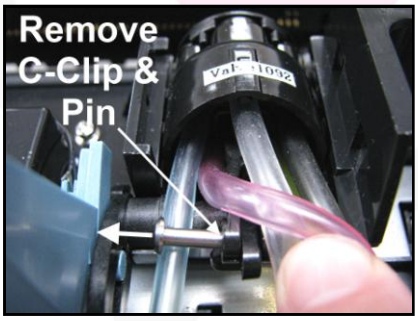


2. Route the hose leads from the new Revolver through the same frame cutout as the existing hoses.

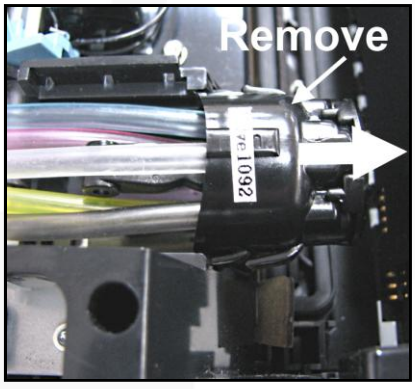
3. **Work one hose at a time:** Carefully match, cut and connect the existing ink hoses to the hose leads on the new Ink Revolver. Trim the hose leads to fit as needed. Use the hose connector barbs included in kit. **IMPORTANT! Do not mix colors! Ink hoses including the two black ink hoses are NOT interchangeable!**



4. Once all the hoses have been connected to the new Ink Revolver, remove the C-Clip from the hinge pin holding the Ink Revolver. Remove the pin.



5. Slide the old Ink Revolver forward in its track and remove.



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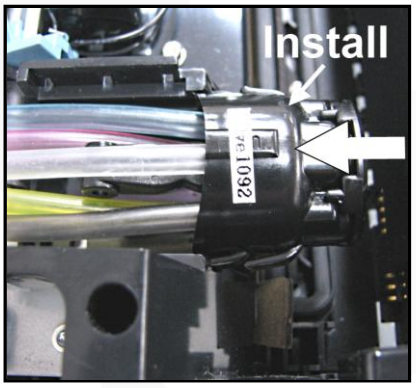
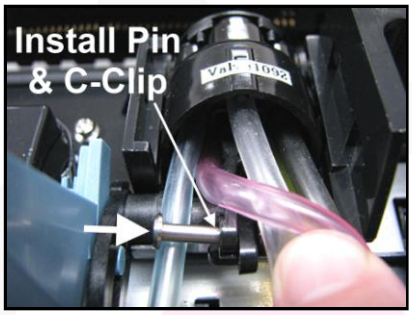
6. Slide the new Ink Revolver back into its track and align the yoke on rear with the hinge bracket. Make sure the new Revolver is turned correctly.



7. Reinstall the Pin and C-clip.



8. Reinstall the Ink Revolver Cover.

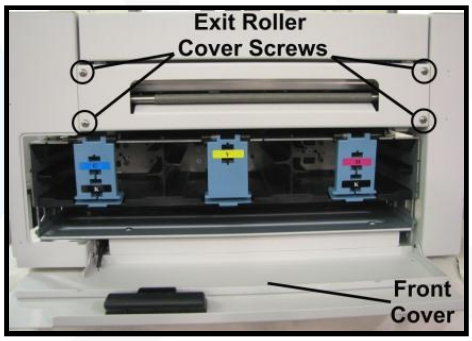
Cleaning/Replacing the Service Station

The Maintenance Station cleans the Printhead Cartridge of excess ink and debris, keeps the Printhead hydrated and protected when not in use, captures ink used to keep nozzles clear, and acts as a base to support media during printing. It fits in the port immediately above the Ink Tank Station.

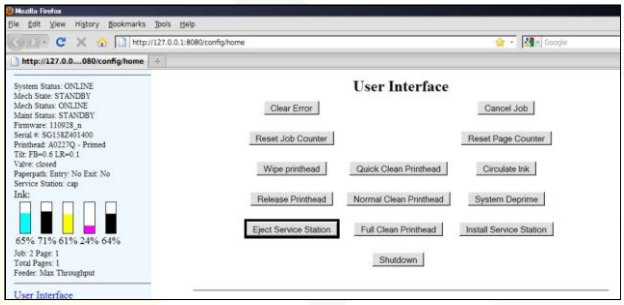
Removing the Service Station

1. **Open the Front Cover (*hinged at bottom*).** Remove the Exit Roller Cover by removing the four (4) screws. Open the Top Cover.

   Release the two latches and open the Clamshell Cover. The Service Station will not fully eject with the Cover Closed.



2. Open the Printer Toolbox. In the User Interface window, press the Eject Service Station button. Once the Printer pushes the Service Station out, turn the Printer OFF.



TURN PRINTER POWER OFF.

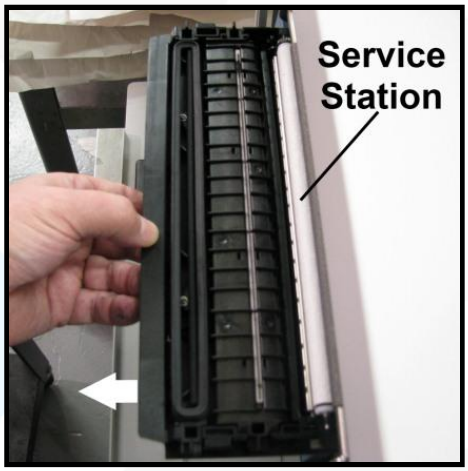
CAUTION

WHENEVER POWERING DOWN UNIT, ALWAYS:

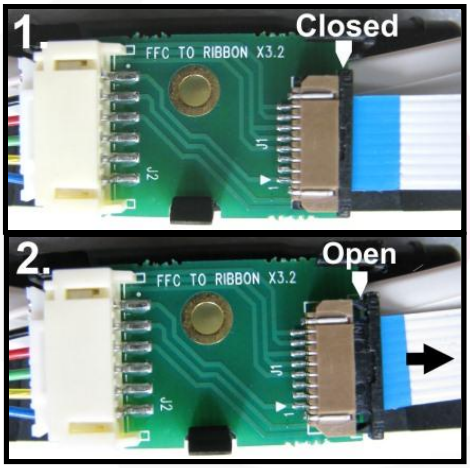
1. **PRESS THE POWER BUTTON ON THE CONTROL PANEL.**
2. **WAIT FOR THE PRINTER TO STOP PROCESSING.**
3. **THEN PRESS THE MAIN POWER SWITCH ON THE REAR PANEL.**

3. Slide the Service Station out of the Service Station port**. NOTE: Do not pull Station all the way out until you disconnect the Ribbon Cable.**

   NOTE: It is a good idea to place an absorbent towel under the Service Station as you remove it to prevent any drips or leaks.

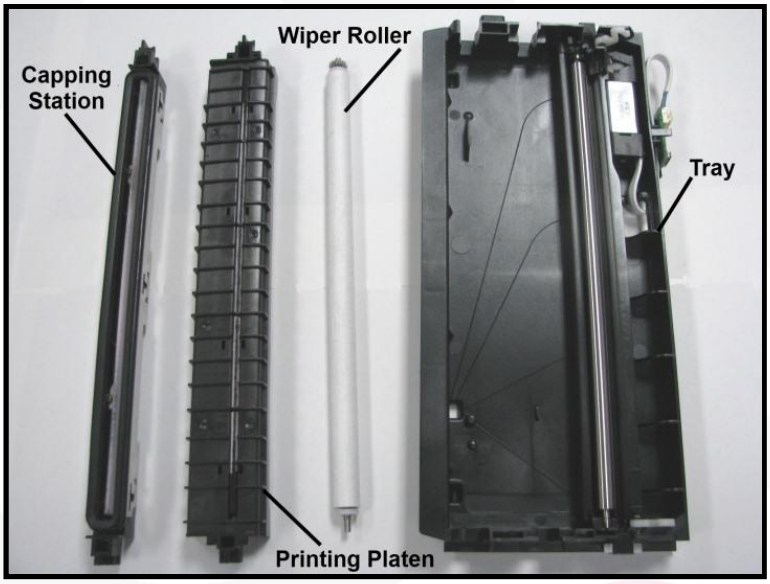


4. **Disconnect the Ribbon Cable.** Slide the Latch open on the Service Station Circuit Board to release the Ribbon Cable. **Remove the Service Station.**



Cleaning the Service Station

1. **Wiper Roller**. .Lift up the Wiper Roller Assembly. Carefully loosen the two small screws retaining the Wiper Roller Latches. **DO NOT remove the screws.** Release the two latches holding the Roller. Remove the Roller and wipe with distilled water. Replace the Roller. Make sure the gear on the Roller engages the gear in the Service Station Tray. Carefully close the latches. **NOTE: Make sure latches are fully locked and the screws are tightened.**



2. **Printing Platen and Capping Station.** Both simply lift out for removal from the Service Station. Clean off ink buildup and debris with distilled water and replace in Service Station Tray.

3. **Service Station Tray.** Remove the Wiper Roller, Printing Station and Capping Station. Wipe the Tray with a clean, damp, lint-free cloth. **NOTE: Be careful not to get the Printed Circuit Board or connections wet.**

Removing the Wiper Motor Assembly

Remove the Service Station (See **Maintenance Section** if not already removed.)

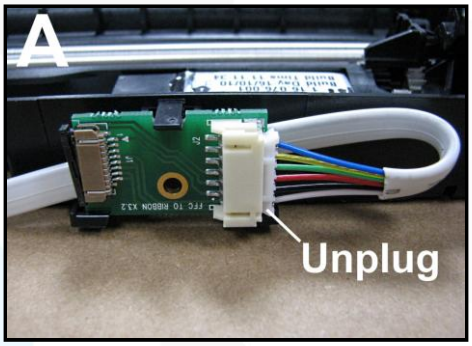
[A] Disconnect the Wiper Module cable from the Service Station Printed Circuit Board.

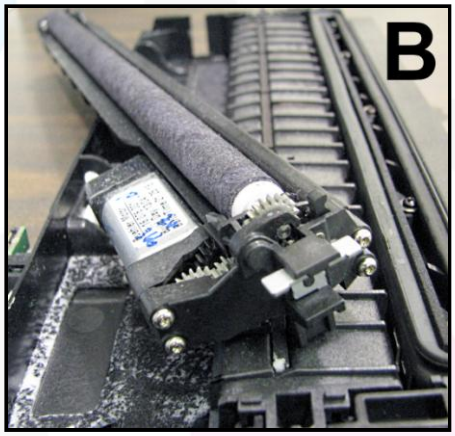
[B] Lift out the Wiper Motor Assembly.

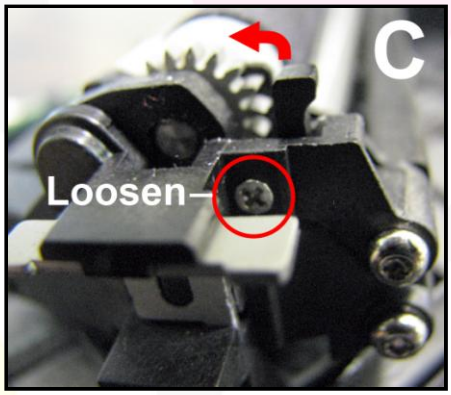
[C] Loosen the two small screws retaining the Wiper Roller Latches just enough to release the (2) Latches. **DO NOT remove the screws!**

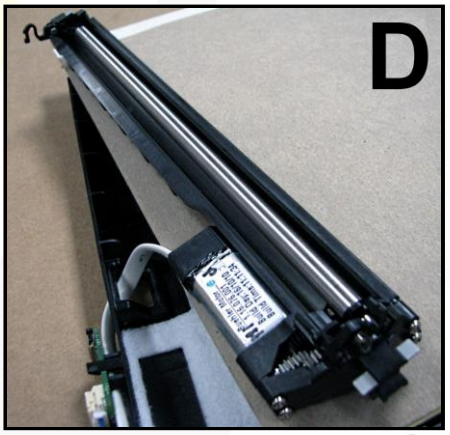
[D] Remove the Wiper Roller.

Install in reverse order. **NOTE:** Make sure Wiper Roller Latch Screws are fully tightened and the Latches are fully closed before installing Service Station into the Printer.





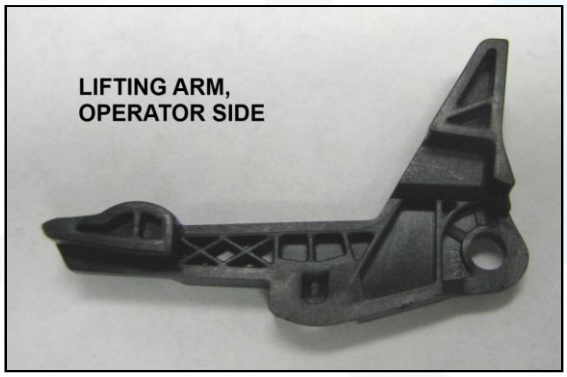


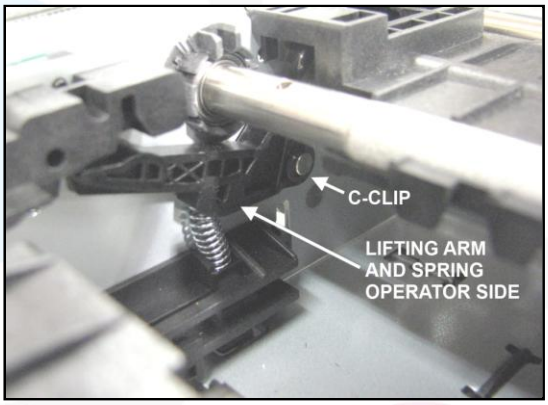


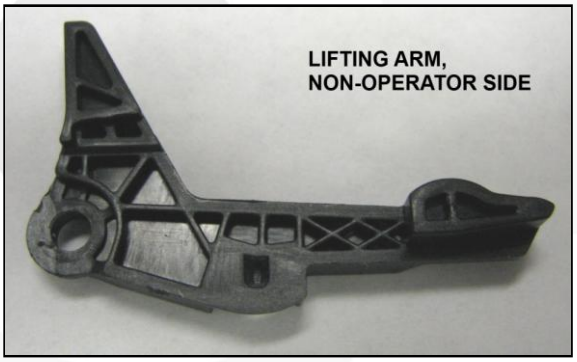
Replacing Service Station Lifting Arms

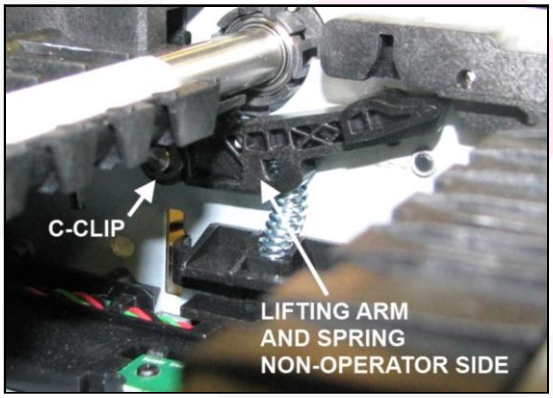
Replacement Kit includes two Springs, two C-Clips and two Lifting Arms (one each for Operator and Non-Operator Side installation.) Service Station must be removed prior to servicing the Lifting Arms (see "Removing the Service Station").

1. Remove C-Clip. Slide Lifting Arm and Spring from stud.
2. Slip on new Lifting Arm and Spring Assembly. Secure with C-Clip.









Lubricating the Service Station

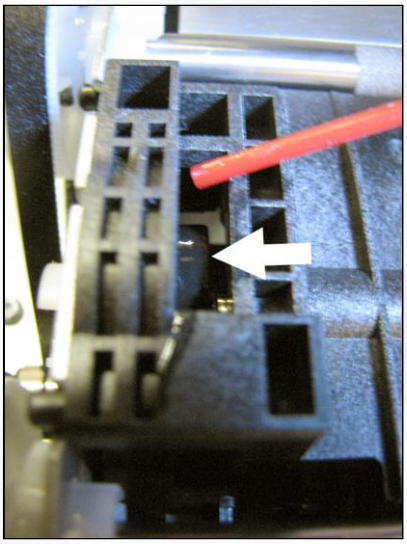
Friction points on the Service Station should be lubricated to ensure optimum performance and reduce wear. This maintenance should be performed when installing a new Service Station, or monthly (after printing about 50,000 pieces.) Use a standard silicone or Teflon® based grease or lubricant.

CAUTION
DO NOT USE PETROLEUM-BASED LUBRICANTS OR GREASE.

Removing the Service Station provides easier access and reduces the chance of excess lubricant getting into the mechanism.

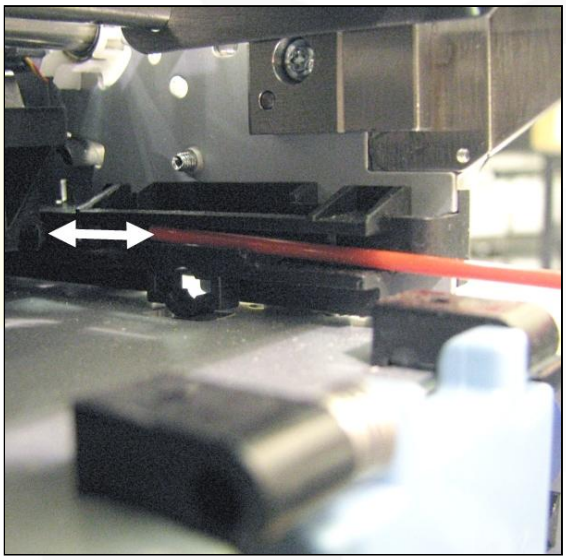
Lubricate Lifting Arm Cams

1. Open the Print Engine Clamshell by releasing and lifting the two locking levers.
2. Apply lubricant to the Lifting Arm Cam through the opening as shown. **(1 on each side)**.



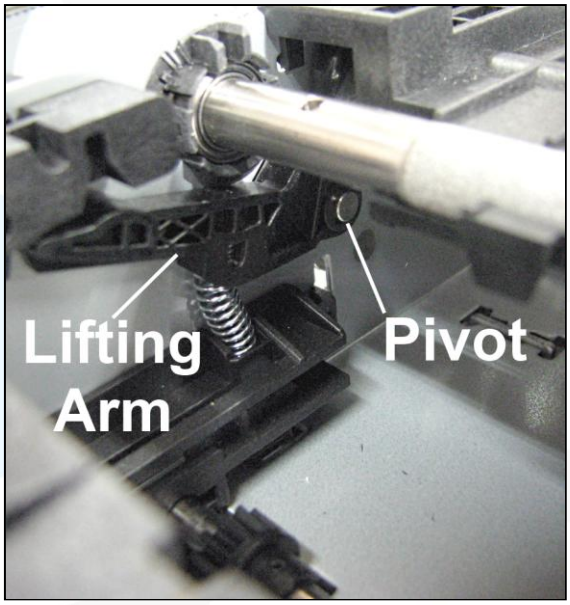
Lubricate Service Station Tracks

1. Apply lubricant along full length the Tracks the Service Station moves on as shown. **(1 on each side)**.



Lubricate Lifting Arm Pivot Points

1. Apply lubricant to the Lifting Arm Pivot as shown. **(1 on each side).**

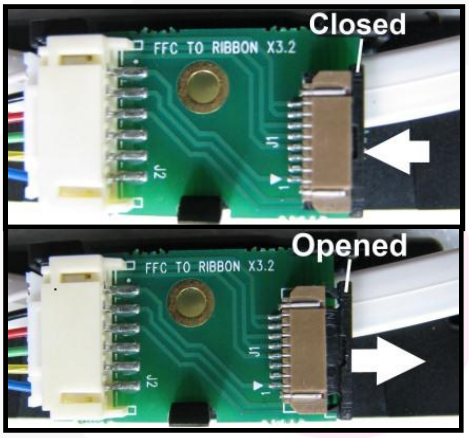


Reinstalling or Replacing the Service Station

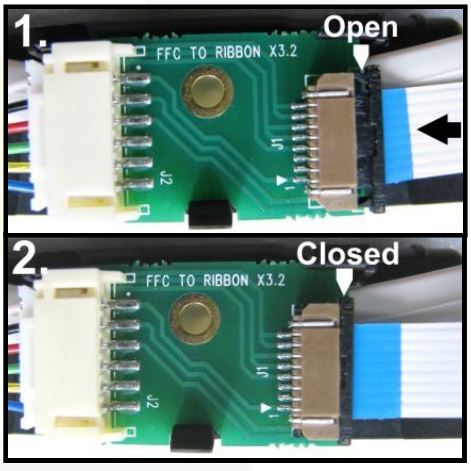
1. Carefully unwrap the new Service Station. (Or reuse cleaned Service Station.) **NOTE: Loose parts may fall out. Keep Roller side facing up when removing packaging.**

CAUTION
MAKE SURE THE LATCHES ON THE WIPER ROLLER ARE FULLY LOCKED BEFORE INSTALLING THE SERVICE STATION.

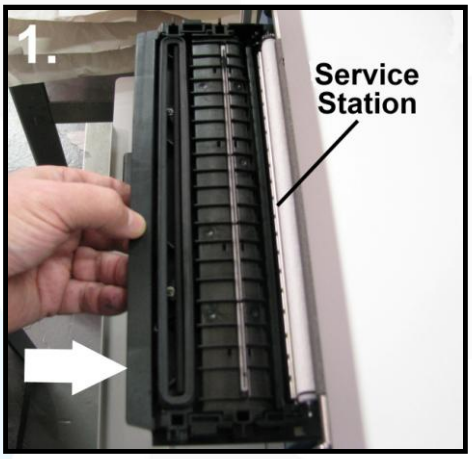
2. Slide the Latch open on the Service Station Circuit Board.

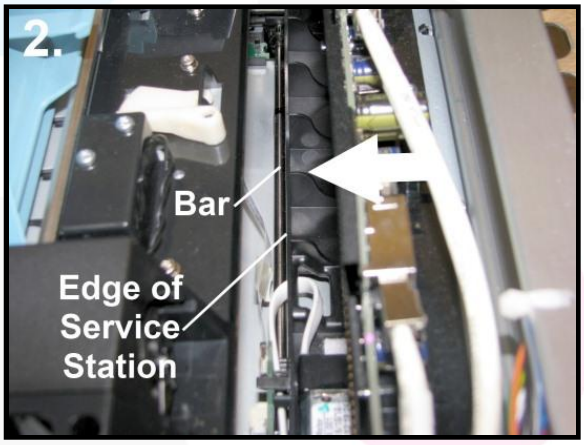


3. **[1]** Plug the Ribbon Connector (*blue side up*) into the space under the Latch.
[2] Close the Latch.

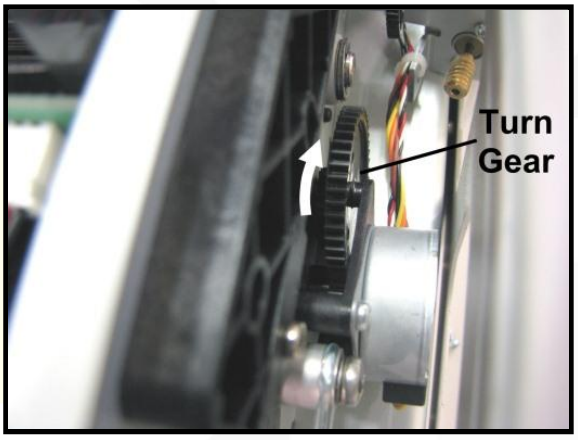


4. **[1]** Slide the Service Station into the Service Station port until it touches the bar.
[2] Look down through the Top Cover to make sure Service Station is aligned with the bar.
IMPORTANT! Service Station must be perfectly aligned with bar to prevent misalignment and operating problems.





5. **GENTLY** push the Service Station while turning the large Gear on right side of Print Engine clockwise. Gear should engage gear on Service Station Roller and pull it in. Once the Service Station starts moving, stop turning the gear. Powering up the unit will pull the Service Station the rest of the way in. **NOTE:** Make sure the wick hanging below the Service Station is inside the plastic trough inside the Ink Tank Station to prevent ink seepage.



6. **Close Clamshell Cover. Replace the Exit Roller Door and Close the Front Cover.**

CAUTION
OPERATE AND HOLD ONTO BOTH LATCHES WHEN OPENING AND CLOSING THE CLAMSHELL COVER TO PREVENT DAMAGE. DO NOT ALLOW THE ASSEMBLY TO DROP BY ITSELF WHEN CLOSING.

Replacing the Ink Waste Tray

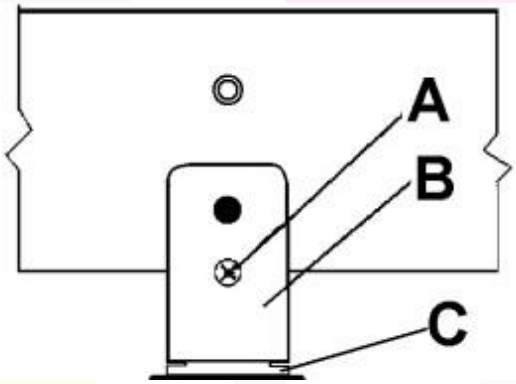
The Ink Tray soaks up any excess ink that may drip from the Print Engine during operation. After a period of time it may become saturated and need replacement.

1. Open Ink Tank Door.
2. Push in on the Tabs to release the Ink Waste Tray and remove it from unit.
3. Replace with a new Ink Waste Tray.

Replacing the Sheet Separators

The Sheet Separators insure separation of the pieces as they are being fed. If you experience double sheet feeding and cannot adjust the Separators to prevent it, they should be replaced. Replacement of the Sheet Separators is not difficult.

1. Turn the Printer OFF and unplug it from the power source.
2. Release the Separator-by loosening the Locking Knob and moving the Paper Side Guides to their maximum opened position.
3. Lower the Separators so that they touch the Feed Roller.
4. Remove the screw **[A]** and the Separator Cover **[B]**. Then remove the Separator **[C]** by prying it out of the Holder.
5. Install a new Separator and replace the Separator Support and screw.



Cleaning

WARNING

THE PRINTER IS A PRECISION MACHINE THAT SHOULD BE CLEANED REGULARLY TO INSURE MANY YEARS OF SERVICE. BEFORE PERFORMING ANY MAINTENANCE, DISCONNECT THE MACHINE FROM ITS POWER SOURCE!

DO NOT REMOVE SIDE COVERS! HIGH VOLTAGES PRESENT.

Clean the Printer regularly to remove accumulated paper dust and ink. Depending on the types of media that are run, paper dust may accumulate inside the Printer and on the Transport.

1. Turn the Printer OFF and unplug it from the power receptacle. Then open or remove the Covers.
2. **Interior:** Use a vacuum with a soft brush attachment or a can of compressed air to help loosen dust particles. **NOTE: Be careful around ink tray and capping station** in the Print Engine area as accumulated ink may splash onto other parts of the printer. Take care not to damage the PC Boards or electrical wiring.
3. **Exterior:** Wipe clean with a lint-free cloth using any standard nonabrasive household cleaner that does not contain plastic-harming solvents.

CAUTION

NEVER SPRAY OR POUR CLEANERS DIRECTLY ON OR INTO THE PRINTER. EXCESS LIQUID COULD HARM ELECTRONIC PARTS. DAMPEN A LINT-FREE CLOTH WITH THE CLEANER AND APPLY IT TO THE PARTS TO BE CLEANED.

Feed Rollers and Forwarding Rollers

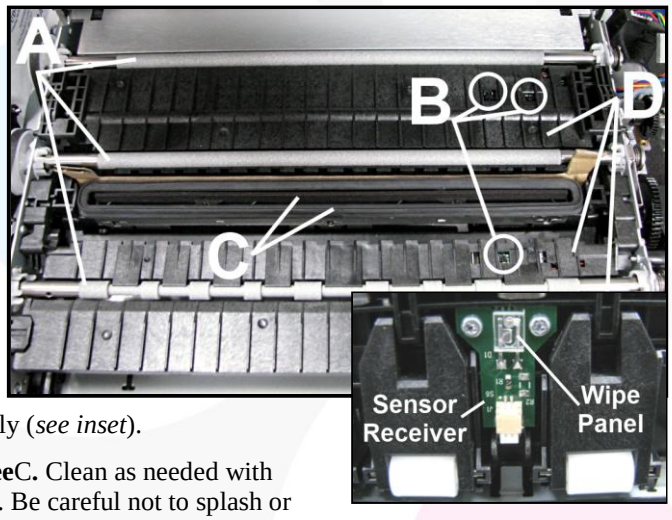
The Feed and Forwarding Rollers can become glazed with paper lint and ink from the media. They should be regularly cleaned with a mild abrasive household cleaner on a damp lint-free cloth.

NOTE: Avoid using solvents on the Rubber Rollers.

Print Engine

Areas in the Print Engine can become glazed with a buildup of dust, paper lint and accumulated ink and have to be cleaned regularly. Open the Top Cover and release the two latches on the Printhead Assembly. **NOTE:** Be careful around Ink Tray and Capping Station in the Print Engine area as accumulated ink may splash onto other parts of the Printer. Take care not to damage the PC Boards or electrical wiring.

[A] Grit Rollers: Clean as needed by moistening a small hard-bristled brush or toothbrush with distilled water. **DO NOT** use anything other than distilled water to clean the Rollers.



[B] Media Sensors: Paper lint and dust may build up on the Media Sensors. Use a can of compressed air or a damp (*not wet*) foam or lint-free cotton swab to gently swab the Sensors. Take care not to drip water into the Circuit Boards. Remember to wipe the clear panel over the Sensor Receiver in the upper Printhead Assembly (*see inset*).

[C] Capping Station Seal and SqueegeeC**.** Clean as needed with distilled water on a damp, lint-free cloth. Be careful not to splash or drip ink on other parts of the Printer.

[D] Printing Platen. Wipe with distilled water on a damp, lint-free cloth.

Appendix A – Colordyne 1600-S Specifications

PRINT RESOLUTION	**Best:** 1600 x 1600 DPI **Normal:** 1600 x 800 DPI
SPEED (color or mono)	Up to 3600 letter size pages or 9000 envelopes per hour
MEDIA SIZE	**Minimum:** 3" x 4.2" (76 mm x 107 mm) **Maximum:** 9.5" x 17" (241 mm x 431 mm)
PRINT AREA	8.5" x 17" (215 mm x 431 mm)
MEDIA THICKNESS	**Minimum:** 0.004" (0.102 mm) **Maximum:** 0.020" (0.5 mm)
INK	Water-based ink. 5 individual 250 ml ink tanks (CMYKK)
PRINT CARTRIDGE	Memjet®
INTERFACE	USB
DIMENSIONS	20" W x 24" L x 17-1/4" H (50.8 cm x 61 cm x 44.0 cm)
WEIGHT	75 lbs. (34 kg)
DUTY CYCLE	500,000 #10 Envelopes per month

All Specifications Subject To Change Without Notice

Appendix B – Supplies and Optional Hardware

The following supply items and optional hardware are available from your Colordyne Distributor:

Supplies

Black Ink Tank

Cyan Ink Tank

Magenta Ink Tank

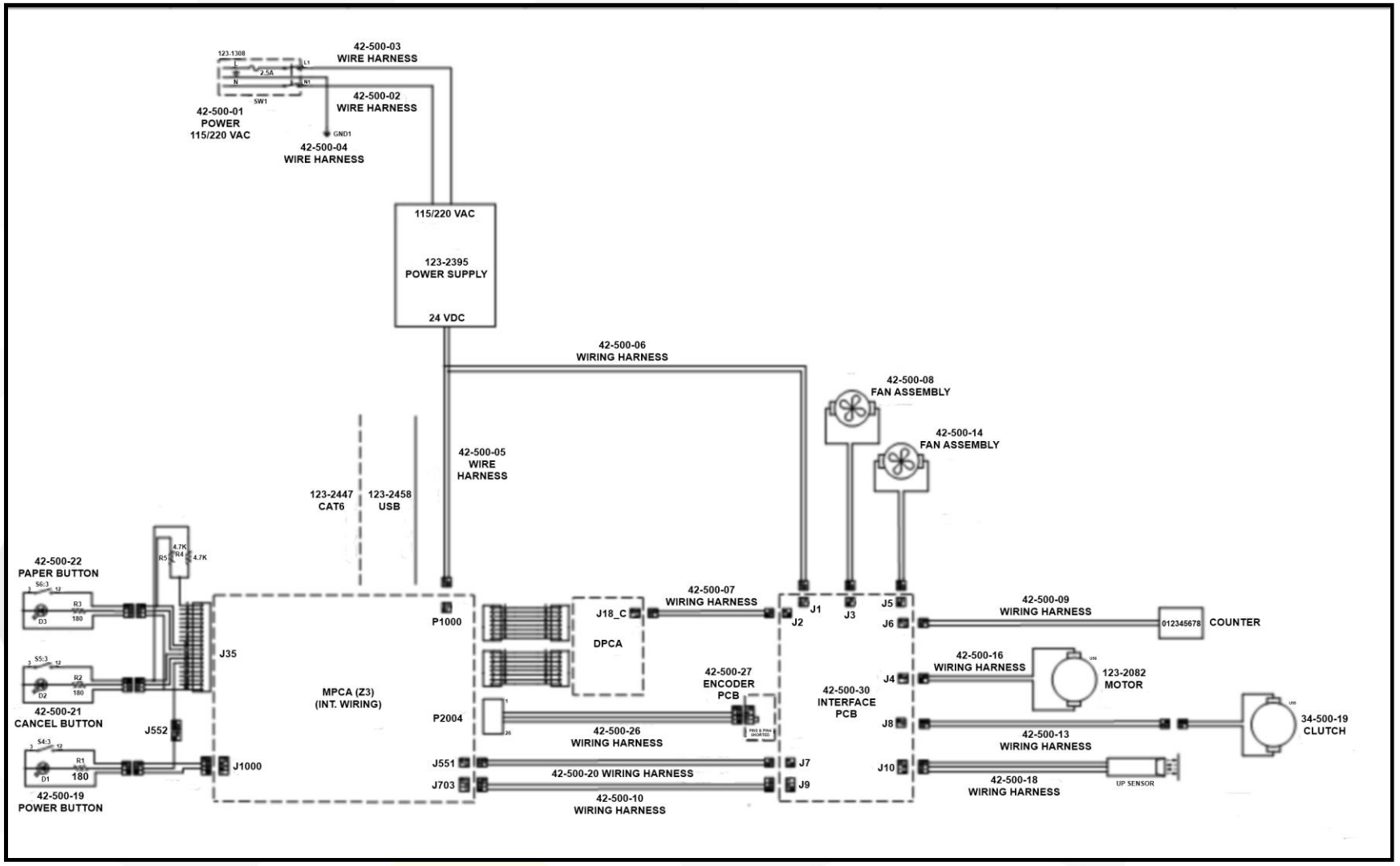
Yellow Ink Tank

Optional Hardware

Conveyor /Stacker

Drop Tray

Appendix C – Z4 Wiring Diagram



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